

A lexical semantics for musical instrument nouns in Dutch



Universiteit Utrecht

MASTER THESIS

Linguistics: the Study of the Language Faculty

Author: Charlie Claessen

Supervisor: Dr. Joost Zwarts

Second reader: Dr. Rick Nouwen

UTRECHT UNIVERSITY

Abstract

In most languages, nominals generally occur with a determiner. In contrast, musical instrument constructions in Dutch can often be bare: not just in the presence of a verb, noun or preposition, but also on their own in subject position. Musical instrument constructions that are not bare are also interesting. The non-bare noun phrase can denote more than just the physical object: for example, it can also denote the music being made by an instrument. We have looked at referential and lexical properties of nouns in general, and showed how a referential and a lexical framework can account for the patterns of determination of musical instrument nouns. We propose a lexical structure modified from Pustejovsky (1995), where his QUALIA STRUCTURE is replaced by RELATIONAL PROPERTIES, that are not tied to specific lexical items. These RELATIONAL PROPERTIES involve the relation between the arguments of a lexical item. For musical instruments, the relation between the two arguments, *physical object* and the *music* is an agentive relation, since the physical object is needed to produce the music. Our structure can account for the patterning of musical instrument constructions in Dutch. Constructions that cannot be bare denote one of the arguments (i.e. the physical object or the music), constructions that are obligatorily bare denote the agentive reading of the RELATIONAL PROPERTIES. Finally, constructions that can both occur bare and non-bare refer to either the music or the agentive reading.

July 2011

Acknowledgements

This thesis could not have been made without my supervisor, Joost Zwarts. He has been there throughout most of my linguistic career: he supervised my bachelor thesis, which we presented together at the TIN-dag, and we wrote an article about it. A year later I returned to him for supervision of my master thesis. I would like to take this opportunity to thank Joost for all the help he gave me in everything I did. I hope that one day I can return the favor and present you a book I contributed to.

Next, I would like to thank Rick Nouwen, for agreeing to be my second reader. Many thanks also to the Weak Referentiality group, for allowing me to participate in all the meetings (even though my contribution may have been minimal): Henriëtte de Swart, Martin Everaert, Joost Zwarts, Ellen-Petra Kester, Bert LeBruyn and Ana Aguilar-Guevara. I would also like to thank all the participants of the Weak Referentiality Discussion Workshop, who listened to the lay-out of my thesis and made some useful suggestions. Thanks to Joran for proof-reading this thesis, and to Emiel for the sharing of LaTeX-knowledge.. To all my fellow Linguistics-students, especially and in no particular order Rianne, Maartje, Ileana, Siri, Aikaterini, and Marjolein: thanks for all the good times. Finally, thanks to all my friends, my entire (extended) family, and of course to Joran, for providing much needed, non-thesis-related entertainment for my evenings and weekends.

Contents

Acknowledgements	2
1 Introduction	4
2 The use of corpus linguistics	7
2.1 Methodological preliminaries	7
2.2 Data collection	8
3 The data: musical instrument constructions in Dutch	9
3.1 Determinerless musical instrument constructions	9
3.2 Definite musical instrument constructions	11
3.3 Bare or definite?	13
4 Theoretical framework	19
4.1 Referential Semantics	19
4.1.1 Referential categories	19
4.1.2 Weak definites as generic individuals	20
4.2 Lexical semantics	21
4.3 Unifying a referential and lexical perspective	25
5 Theoretical approaches applied to our data	27
5.1 Musical instrument nouns and referential semantics	27
5.2 Musical instrument nouns and lexical semantics	29
6 A modified lexical semantics for musical instrument nouns	33
6.1 Referentiality on top of a lexical framework	33
6.2 A modified lexical framework	34
6.3 A more general picture	41
7 Conclusion	46
Appendix	51
A Examples from the corpora	51
References	54

1 Introduction

In a lot of languages, musical instruments can only occur in a non-bare construction, as in the Spanish (1a).¹ In Dutch, however, musical instrument constructions can drop the article.² It has been noted (by Booij 2009, among others) that this mainly happens in constructions with the verb *spelen* ‘play’ (1b):

- (1) a. Puedo tocar el piano (Spanish)
I-can play the piano
‘I play the piano.’
b. Ik speel piano
I play piano
‘I play piano.’ (CGN)

Since in (1b) the musical instrument noun occurs bare in the presence of a verb, a lot of people (Mithun 1984, Asudeh and Mikkelsen 2000, Massam 2001, Dayal 2003, Farkas and De Swart 2003, Booij 2009, Carlson 2009, Stvan 2009) would classify bare musical instrument nouns as some form of noun incorporation: nouns can be combined with verbs into verbal compounds with the structure $[V N]_V$ or $[N V]_V$. That is, *piano* in (1b) occurs bare only because it is incorporated by the verb. However, musical instrument nouns can also occur bare when not in the presence of a verb, but in the presence of another noun or a preposition, something that is not possible for all nouns, as (2) shows:

- (2) a. Ze heeft gevoel voor het theatrale aspect van harp
She has feeling for the theatrical aspect of harp
‘She has a sense of the theatrical aspect of harp.’ (27MW)
b. *Hij heeft gevoel voor het vakmanschap van tafel
He has feeling for the craftsmanship of table
‘He has a sense for the craftsmanship of table.’

In (2a), the musical instrument noun *harp* can be bare in the scope of the preposition *van*, while the noun *table* in (2b) cannot. This example shows that there is something more than incorporation going on for musical instrument constructions in Dutch.

Dutch has quite a lot of variation in the determination of musical instrument constructions. Some constructions, like (3a), have to be definite: a bare construction is ungrammatical; others, like (3b), have to be bare. Here, the definite construction is not ungrammatical, but it has the meaning that he won the prize not for himself, but for someone else, namely for the violin. There are also constructions where the article can be omitted, without resulting in a meaning difference, like in (3c).

- (3) a. De klank van *(de) fluit is onzeker
The sound of (the) flute is insecure

¹This thesis compares non-bare and bare musical instrument constructions. The non-bare examples we give are definite examples; we did not discuss indefinite examples due to time constraints.

²All glossed examples are Dutch, unless mentioned otherwise. The examples that are labeled (27MW) or (CGN) are taken from a corpus. We will elaborate on our corpus use in section 2.

- ‘The sound of the flute is insecure.’ (27MW)
- b. Hij won de tweede prijs voor (*de) viool
He won the second prize for (the) violin
‘He won the second prize for the violin.’ (27MW)
- c. Hij won de tweede prijs met (de) viool
He won the second prize with (the) violin
‘He won the second prize with the violin.’ (27MW)

Not just the bare occurrences of Dutch musical instrument constructions are interesting, the non-bare constructions are as well. The article can indicate a regular use, as in (4a), where the musical instrument noun denotes the physical object: in the context, there has to be one salient organ that satisfies the description. However, this does not have to be the case: for one, musical instrument nouns can denote the music being made with the instrument, as shown in (4b).

- (4) a. Het orgel staat achter een smeedijzeren hekje
The organ stands behind a wrought-iron fence
‘The organ stands behind a wrought iron fence.’ (27MW)
- b. Ze stonden te walsen op de viool van André Rieu
They stood to waltzing on the violin of André Rieu
‘They were waltzing on the violin of André Rieu.’ (27MW)

In (4b), *the violin* does not denote the physical object that André Rieu is playing: they were not waltzing on top of his violin. The musical instrument denotes the music: they were waltzing on the music that André Rieu was producing with his violin. So, musical instrument nouns in Dutch show different patterns: they do not just occur with a determiner, but can also be bare, something that most nouns cannot. Furthermore, there are more meanings encoded in a musical instrument noun than one would expect: a musical instrument noun can denote more than just the physical object. This variation suggests that they have a rich semantic component. In this thesis, we set out to explain the determination of musical instruments: some contexts force musical instrument nouns to be non-bare, others force them to be bare, and yet others allow both a bare and a non-bare form. We will show that this behavior of musical instrument nouns can be explained by a rich lexical structure. We used corpora as a source of examples. The majority of the musical instrument constructions found in this thesis is taken from corpora. Other examples include simplifications or modifications of examples from corpora, as well as made-up examples. This corpus-based approach is motivated in section 2. Section 3 gives a complete overview of the patterns found in musical instrument constructions. In section 4 we elaborate on two frameworks that can help understand the behavior of Dutch musical instrument nouns. The first is a framework of *referential semantics*, which deals with the references of definite noun phrases and their bare counterparts. The second framework we use is one of *lexical semantics*, proposed by Pustejovsky (1995), which shows how different meanings can be encoded in a single nominal. We apply these two frameworks to the musical instrument data in section 5. We will show that neither

is sufficient in accounting for all data, which leads us to propose our own framework. In section 6 we modify Pustejovsky's framework, and introduce an agentive reading for musical instrument nouns, that allows our framework to account for the patterning of musical instrument nouns. In the same section, we also propose how this lexical structure for musical instrument nouns can be applied to other classes of nouns. Finally, this thesis is concluded in section 7.

2 The use of corpus linguistics

The majority of the examples in this thesis are taken from corpora: not because we want to give a quantitative analysis of musical instrument constructions, but mainly as a source of realistic examples. This section presents the corpora and tools that we used, and we describe how and why we made use of both corpus examples and our own intuitions.

2.1 Methodological preliminaries

In this thesis, we used two corpora. The first is the **27 Miljoen Woorden Krantencorpus 1995**, ‘27 Million Words Newspaper corpus 1995’. This corpus contains all newspaper texts published between January 1994 and April 1995 from the Dutch quality newspaper *NRC Handelsblad*. The corpus, made available through the Dutch Institute for Lexicology (*INL*), was automatically tagged, but not (manually) corrected, meaning that only the ‘simple’ instantiations of a category were tagged, that there were still errors in the tags, and that a lot of words did not receive any tag.

The second corpus we used is the **Corpus Gesproken Nederlands**, ‘Corpus Spoken Dutch’.³ This corpus contains only (transcribed) spoken texts, and covers about 9 million words. We added this corpus because we expected to find certain constructions, like for example bare musical instrument nouns in subject position, more easily in a spoken corpus than in a newspaper corpus. However, the Corpus Spoken Dutch is very small (to find our limited set of musical instrument nouns): where the newspaper corpus provided hundreds and hundreds of examples with our set of about 20 musical instrument nouns, the spoken corpus provided only dozens. While the spoken corpus did not contain any bare musical instrument nouns in subject position, we did find some constructions in the spoken corpus that we did not find in the newspaper corpus. The spoken corpus contains conversations in more informal language. For example, musical instrument constructions with the verb *oefenen* ‘practice’ were only found in the spoken corpus.

From these two corpora, we extracted a lot of sentences containing musical instrument nouns.⁴ We collected them in text files that were searchable with **Windows Grep**, a sophisticated yet simple tool that searches for strings that you specify. This way, we could not only search for musical instrument nouns in the near presence of certain words (or punctuation marks), but also exclude contexts where musical instrument nouns appear in the near presence of certain words. This proved very helpful, for example in searching for bare constructions.

³This corpus contains both files of speech (i.e. sound files), and their annotations (i.e. text files). Since we were not interested in the actual speech, it was sufficient to use only the annotations.

⁴In total, we collected about 1000 sentences containing musical instrument nouns. However, not every sentence collected is unique: for example, one sentence with two musical instrument nouns would occur twice in our collection. Most of the data comes from the newspaper corpus: the spoken corpus only had a little over one hundred instances of musical instruments.

2.2 Data collection

It is common practice among linguists to make up examples, so that the example is maximally relevant to the discussion. Sometimes, however, it can be hard to think of new examples to add to one's collection of data. We used corpora to find examples. Partly, we wanted to verify constructions that already came to mind, and partly we wanted a new source of examples: one's intuitions can fall short in thinking of all possible ways a musical instrument noun can be used. Whereas it is easy to make up short, simple examples, it can be quite difficult to come up with a complex example that still sounds natural. Fortunately, the sentences found in corpora are often long, complex sentences, that still sound natural. A downside to this is that the sentences found in corpora are often longer than necessary to make a point: in this study, we shorten complex corpus sentences, while keeping them natural-sounding. Another advantage that examples from corpora have, is that corpus examples do not appear out of context: they are preceded and followed by a certain number of words. This helps to understand, and possibly disambiguate a sentence.

We have to keep in mind that in theory, the number of sentences in one language is unbounded, while the number of sentences in a corpus is limited. When a certain construction is not found in a corpus, one cannot say anything about the grammaticality. For all the constructions in this thesis that were not found in a corpus, we relied on our own intuitions to determine the grammaticality. For all examples that we marked with *, ?, or #, we indicated whether this judgment indicates an ungrammatical sentence, or a sentence that is grammatical, but has a different meaning than expected.

The examples used in this thesis have three sources: they are (slight modifications of) examples from the newspaper corpus, examples from the spoken corpus, and made-up examples. Not all made-up examples are completely made up, but are for example the definite counterpart of a bare corpus example. For the musical instrument examples in this thesis, we indicated the examples that are taken from the 27 million words newspaper corpus with (27MW) and the examples that are taken from the Corpus Gesproken Nederlands with (CGN). All other musical instrument examples, i.e. the unmarked ones, are dependent on our own intuitions.

3 The data: musical instrument constructions in Dutch

This section gives an overview of the observations we made for Dutch musical instrument constructions. The first observation that has been made for musical instrument nouns in Dutch is that they can be bare, which we elaborate in section 3.1. Section 3.2 shows that definite musical instrument constructions display more variation than one would expect: there is more to definite musical instrument nouns than just denoting the physical object. Finally, section 3.3 shows that the pattern of determination of musical instrument nouns is not arbitrary.

3.1 Determinerless musical instrument constructions

The very first observation concerning bare musical instrument constructions in Dutch, is that they can be bare when in the presence of a verb. At first it seems that this is not unique to musical instrument nouns: Booij (2009) gives a list of noun-verb combinations that are similar to the noun-verb construction of musical instruments, including (5b):

- (5) a. Ik speel piano
I play piano
'I play piano.' (CGN)
b. Ik rijd auto
I drive car
'I drive cars.'

However, there is something special about musical instrument nouns: they can occur bare where most other nouns (including the ones that Booij lists) cannot. While all musical instrument nouns can occur bare with the verb *spelen*, it is not the case that all nouns that are modes of transportation can occur bare with the verb *rijden*:

- (6) a. Ik speel gitaar, viool, cello
I play guitar, violin, cello
'I play guitar, violin, cello' (CGN)
b. Ik rijd brommer, ?bus, ?vrachtwagen
I drive moped, bus, truck

Furthermore, the bareness of musical instrument nouns like *piano* is not (just) due to the verb *play*: musical instrument nouns can also occur bare with other verbs (7a-b), while the noun *auto* cannot occur bare with other verbs: the bare sentences in (7c-d) are ungrammatical.

- (7) a. Ik bleef gitaar oefenen
I kept guitar practicing
'I kept practicing guitar.' (CGN)
b. Hij heeft viool gestudeerd
He has violin studied

- ‘He has studied violin.’ (27MW)
- c. *Ik bestuur auto
I drive car
‘I drive cars.’
- d. *Hij probeerde auto
He tried car
‘He tried to car.’

Musical instrument nouns can be bare not just in the presence of a verb, but also in the presence of a noun (a N-N combination), as in (8a), or a preposition (a P-N combination), as in (8b).⁵ This is something that most other nouns cannot: the bare examples in (8c-d) are ungrammatical.

- (8) a. Hij is docent blokfluit aan het conservatorium van Münster
He is teacher recorder at the conservatory of Münster
‘He teaches recorder at the Conservatory of Münster.’ (27MW)
- b. Een muziekstuk geschreven voor gitaar
A piece written for guitar
‘A piece of music written for guitar.’ (27MW)
- c. *Hij is instructeur auto
He is instructor car
‘He is a car driving instructor.’
- d. *Een deur gemaakt voor auto
A door made for car
‘A door made for cars.’

One could claim that in all examples above, the bareness of the musical instrument noun is dependent on another lexical item, be it a verb, a noun, or a preposition. However, as (9a) shows, musical instrument nouns can be bare even in subject-position, without being dependent on another lexical item. It can therefore be ruled out that musical instruments can only be bare because they depend on another lexical item. It must be noted that, as (9b) demonstrates, not all bare musical instrument nouns that occur in sentence-initial position are subjects. Finally, a musical instrument noun can also be the subject of a small clause within a PP, as (9c) shows.

- (9) a. Saxofoon is op conservatoria vreselijk populair bij vrouwen
Saxophone is at conservatories terribly popular with women
‘Saxophone is at conservatories terribly popular with women.’ (27MW)
- b. Cello hoor ik graag
Cello hear I gladly
‘I like to hear cello.’
- c. Zij studeert aan het conservatorium met klarinet als hoofdvak en piano
She studies at the conservatory with clarinet as major and piano

⁵Dutch also has postpositions, but they signal movement, so they can not be used with musical instrument nouns: Dutch musical instrument nouns only occur with prepositions.

als bijvak
as minor
‘She studies at the conservatory with a major in clarinet and a minor in piano.’ (27MW)

As this subsection shows, there are a lot of contexts in which musical instrument nouns occur bare: in combination with a verb, noun or preposition. It is even possible for a musical instrument noun to be bare in subject position, so not in combination with anything. We return to this issue in section 3.3, where we will see that the bareness of musical instrument nouns is not arbitrary. The next subsection concerns definite musical instrument constructions. The fact that musical instrument nouns can occur bare in a lot of situations is special. That musical instrument nouns can be definite seems unsurprising. We will look at these definites from a more semantic perspective, and show that there is also more to the definite musical instrument constructions than one would expect.

3.2 Definite musical instrument constructions

This section will show that definite musical instrument constructions display more variation compared to other definite nouns.⁶ Let us first consider uses that are not specific to musical instrument constructions, in (10):

- (10) a. Het orgel staat achter een smeedijzeren hekje
The organ stands behind a wrought-iron fence
‘The organ stands behind a wrought iron fence.’ (27MW)
- b. De panfluit is een duizenden jaren oud blaasinstrument
The panpipe is a thousands years old wind-instrument
‘The panpipe is a millennia-old wind instrument.’ (27MW)
- c. Ook in muziek uit Afrika kom je de accordeon tegen
Also in music from Africa come you the accordion against
‘One also encounters the accordion in music from Africa.’ (27MW)

First of all, like all definites, a definite musical instrument noun can be a regular definite, referring to the physical object being a musical instrument, as in (10a). Secondly, a definite musical instrument noun can refer to the kind, as in (10b).⁷ Finally, a definite musical instrument noun can also be a generic property, as in (10c). It is not a property of *all* accordions that one encounters it in music from Africa. Rather, it says something about the frequency of encountering accordions in music from Africa. These three denotations are not specific to musical instrument constructions, as the examples in (11) show.

⁶This section elaborates on definite musical instrument nouns. However, a similar story holds for musical instrument nouns occurring with the indefinite article: non-bare musical instrument nouns behave differently from bare musical instrument nouns.

⁷The theoretical framework of kind denotations, is worked out in section 4.

- (11) a. De stoel staat achter een smeedijzeren hekje
 The chair stands behind a wrought-iron fence
 ‘The chair stands behind a wrought iron fence.’
 b. Het wiel is een duizenden jaren oude uitvinding
 The wheel is a thousands years old invention
 ‘The wheel is a millennia-old invention.’
 c. Overal in Afrika kom je de mobiele telefoon tegen
 Everywhere in Africa come you the mobile phone against
 ‘One encounters the mobile phone everywhere in Africa.’

However, there are definite musical instrument constructions that do not refer to a physical object, nor have any generic interpretation. Consider the examples in (12), where the musical instrument noun phrases denote something more abstract:

- (12) a. Ze won de eerste prijs met de viool
 She won the first prize with the violin
 ‘She won the first prize with the violin.’ (27MW)
 b. Ze stonden te walsen op de viool van André Rieu
 They stood to waltzing on the violin of André Rieu
 ‘They were waltzing on the violin of André Rieu.’ (27MW)
 c. Voor die emoties is de viool heel geschikt
 For those emotions is the violin very fit
 ‘The violin is ideal for those emotions.’ (27MW)

The definite musical instrument nouns in (12) are not regular definites: they do not denote the physical object. The example in (12a) does not focus on the physical object itself, but on *playing* it. At the time of utterance, the instrument itself does not have to be present. The musical instrument nouns in (12b-c) denote the music being made by the instruments: *violin* in (12b) does not denote the physical object that André Rieu owns (ignoring the fact that he, as a famous Dutch violinist, probably owns more than one violin), but denotes the music that he makes with the violin that he is playing. The musical instrument noun in (12c) does not denote the physical object either: when people talk about musical instruments conveying emotions, they do not talk about the physical object displaying emotions, but about the emotions evoked by the music produced by the instrument.

Besides these uses of definites, definite nouns can sometimes get a metonymic interpretation. For musical instruments nouns, this is the case when a (definite) musical instrument noun refers not to the instrument, but to the musician playing it. This is the case in the following example: a singer usually brings both a violinist and a bass-guitarist to accompany her voice.⁸

⁸Rick Nouwen pointed out to me that the musician mentioned in this example is Lisa Germano, a musician originally known for playing the violin. Later, she switched to singing and playing the guitar. With this knowledge, *the violin* in this example is not metonymic, but refers to the physical object being Germano’s violin. However, Rick Nouwen agreed that without this knowledge, our interpretation holds: in a different context (where Germano is not a violin player herself), *the violin* can indeed get a

(13) (27MW)

Op haar huidige tournee heeft Germano geen band bij zich.
On her current tour has Germano no band with *zich*
'On her current tour, Germano did not bring a band with her.'
Alleen een bassist ondersteunt nu haar gitaarspel.
Only a bass-player supports now her guitar-play
'Only a bass player supports her guitar.'
De viool was niet meegekomen
The violin had not come-along
'The violin had not come along'
en het duo zat heel ingetogen op stoelen.
and the duo sat very subdued on chairs
'and the duo sat, very subdued, on chairs.'

However, for a lot of definite musical instrument constructions, it is not clear what is referred to exactly: they are ambiguous. Consider the examples in (14):

- (14) a. Intussen begint de piano te spelen
Meanwhile starts the piano to play
'Meanwhile, the piano starts to play.' (27MW)
b. Als pianist is hij minder vertrouwd met de viool
As pianist is he less familiar with the violin
'As a pianist he is less familiar with the violin.' (27MW)

In (14a), even with the context given in the corpus, it is unclear whether the piano indicates the musician, or that the instrument noun does refer to the instrument, but that (for stylistic purposes) the instrument is attributed certain agentive properties. In (14b), it is unclear whether the violin refers to the specific violin the pianist is playing, or whether it refers more to violin-playing in general. It could even be the case that a conductor, who is very proficient in playing the piano, has some trouble with directing a violin concerto.

This subsection has shown that definite musical instrument constructions do not just refer to the physical object, to the kind or to some generic property, but can also be used metonymically, and it can even denote the music produced by the instrument. Section 3.3 continues the distinction between bare and definite musical instrument constructions.

3.3 Bare or definite?

We have seen situations in which musical instrument constructions are bare, and we have seen constructions that are definite. While section 3.1 simply stated that musical instrument nouns can be bare in different contexts, this subsection shows that the bareness is not arbitrary: there are syntactical and semantical constraints that allow or disallow a

metonymic interpretation.

bare form. First, this subsection presents contexts that force a musical instrument noun to be bare. Then, we present contexts that disallow a musical instrument noun to be bare. Finally, this subsection presents contexts that allow a musical instrument noun to be both bare and non-bare.

First we present constructions that only occur with bare musical instrument nouns. Constructions that force a musical instrument noun to be bare are verbs that express activities that revolve around acquiring a skill associated with musical instruments, like *studeren* ‘study’ and *spelen* ‘play’.

- (15) a. Zij speelt (?de) cello
 She plays (the) cello
 ‘She plays (the) cello’ (CGN)
 b. Ze studeert (*de) accordeon
 She studies (the) accordion
 ‘She studies (the) accordion.’ (27MW)

While it is questionable if (15a) is ungrammatical, it is certain that the definite noun phrase cannot be used to convey that she has the skill of playing the cello, which is what is conveyed by the bare form.⁹ Other constructions that force a musical instrument noun to be bare are nouns that express a habitual activity associated with musical instruments, such as *docent* ‘teacher’ and *hoofdvak* ‘major’.

- (16) a. Hij geeft hoofdvak klarinet
 He teaches major clarinet
 ‘He teaches major clarinet.’ (27MW)
 b. Hij is docent blokfluit aan het conservatorium van Münster
 He is teacher recorder at the conservatory of Münster
 ‘He teaches recorder at the Conservatory of Münster.’ (27MW)

Secondly, there are constructions that do not allow a bare form for musical instrument nouns.¹⁰ Above it was shown that the verbs *spelen* ‘play’ and *studeren* ‘study’ only take bare musical instrument nouns. However, modified versions of these verbs behave the opposite: they do not allow a bare form. In the examples in (17), the bare form is ungrammatical.

- (17) a. De uitroep wordt bliksemsnel op *(de) cello nagespeeld
 The cry is lightning-fast on (the) cello after-played

⁹When a situation revolves around a non-stereotypical use of playing a musical instrument, the musical instrument noun does not have to be bare:

- (i) Hij speelt de gitaar terwijl deze plat op een tafel ligt
 He plays the guitar while it flat on a table lies
 ‘He plays the guitar that lies flat on a table.’

¹⁰These constructions cannot be bare, but this does not entail that they enforce a definite form: they can also have an indefinite article.

- ‘The cry is lightning-fast on the cello reenacted.’ (27MW)
- b. Zij bespeelt *(de) saxofoon met liefde
She on-plays (the) saxophone with love
‘She plays the saxophone with love.’ (27MW)
- c. Hij heeft een liedje ingestudeerd op *(de) accordeon
He has a song in-studied on (the) accordion
‘He has rehearsed a song on the accordion.’ (27MW)

In the examples (17a) and (17c) above, the musical instrument noun occurred in a PP. Another verb that does not allow a bare construction within a PP when combined with a musical instrument noun is the verb *oefenen* ‘practice’, as shown in (18a): the bare form is not completely acceptable. As (18b) shows, the definiteness of (18a) is not unique to musical instrument nouns: the bare form in (18b) is ungrammatical.

- (18) a. Ik wil oefenen op ?(mijn) gitaar
I want practice on (my) guitar
‘I want to practice on my guitar.’ (CGN)
- b. Ik heb geoefend op *(de) galopwissel
I have practiced on (the) change-of-leg
‘I have practiced on the change-of-leg.’

Certain prepositions also force a non-bare construction in their noun phrase, regardless of the context. Such prepositions are *aan* ‘at’, *achter* ‘behind’ and *vanachter* ‘from behind’.¹¹

- (19) a. Zodra hij aan de piano zit valt de zaal stil
When he at the piano sits falls the room silent
‘The room fell silent as soon as he sat at the piano.’ (27MW)
- b. Hij werd omschreven als een wonder achter de piano
He was described as a miracle behind the piano
‘He was described as a prodigy at the piano.’ (27MW)

¹¹World knowledge plays a role for these prepositions: they are only applicable to objects that have a functional front. You can only play the piano from one side of the (rather large) physical object. Musical instruments without a functional front (for example, because they are small instruments from the perspective of the musician) do not combine with these prepositions, as (ia) shows. This constraint does not only hold for musical instruments, but for all objects: a *computer* and a (*steering*) *wheel* do have a functional front, so these nouns can be used with these prepositions, as (ib-c) demonstrate.

- (i) a. #Hij staat achter de saxofoon
He stands behind the saxophone
‘He supports the saxophone.’
- b. Ze zit aan de computer
She sits at the computer
‘She sits at the computer.’
- c. Hij zit achter het stuur
He sits behind the wheel
‘He sits behind the wheel.’

- c. Zijn koren dirigeerde hij vaak vanachter de piano
 His choirs conducted he often from-behind the piano
 ‘He often conducted his choirs from behind the piano.’ (27MW)

We have seen above that musical instrument nouns that occur with the verb *spelen* ‘play’ are bare, as (20) shows. However, when this verb is combined with the preposition *op* ‘on’, the musical instrument noun has to be non-bare, as (21) shows.

- (20) Ik speel (?de) piano
 I play (the) piano
 ‘I play piano.’ (CGN)
- (21) a. Telkens klinkt het walsje dat haar moeder op (?de) piano speelde
 Every-time sounds the waltz that her mother on (the) piano played
 ‘Again and again sounds the waltz that her mother played on the piano.’
 (27MW)
- b. De statige man speelde het Ave Maria op?(zijn) dwarsfluit
 The stately man played the Ave Maria on (his) flute
 ‘The stately man played the Ave Maria on his flute.’ (27MW)
- c. Als ik twee tonen op (?de) piano speel, hoor ik soms een
 When I two tones on (the) piano play, hear I sometimes a
 compleet lied
 complete song
 ‘When I play two tones on the piano, I sometimes hear a complete song.’(27MW)

Situations like (20), that are described with a bare noun, differ from situations described with a non-bare nominal, like the examples in (21). The skill associated with playing a musical instrument plays a role in the determination. For a musical instrument noun to occur bare, the skill has to be involved.¹² The non-bare form in (21) is used when a specific song is mentioned, as in (21a-b). In these examples, the skill of playing an instrument is still involved. However, a non-bare form is also required when the situation describes someone playing some random tones unintentionally, like in (21c). This situation does not require someone to possess the skill of playing an instrument, so the bare form cannot be used.

Not directly relevant to our story, but still interesting observations, are the following ones. The first is, that determination still plays a role with respect to uniqueness. Consider the examples in (22):

- (22) a. Ze speelt viool in het Nederlands Philharmonisch Orkest
 She plays violin in the Dutch Philharmonic Orchestra
 ‘She plays violin in the Dutch Philharmonic Orchestra.’

¹²This can even be the case in episodic events: (20) can be the answer to the question *What are you doing right now?*, so denoting a specific event. However, one can only answer this question with (20) if one is a pianist, or at least training to be one. One cannot answer (20) if one is a small child, just making random noise using the piano.

- b. #*Ze speelt de viool in het Nederlands Philharmonisch Orkest*
 She plays the violin in the Dutch Philharmonic Orchestra
 ‘She plays the violin in the Dutch Philharmonic Orchestra.’

Using a determiner, as in (22b), forces uniqueness. However, this sentence is odd, because there is not just one violin in the orchestra: there are many, so the definite construction cannot be used. The oddness of (22b) is not due to the observation that the definite *?Ze speelt de viool* ‘she plays the violin’ is odd, as (23) demonstrates.

- (23) a. *Ze speelt cello in een strijkkwartet*
 She plays cello in a string-quartet
 ‘She plays cello in a string quartet.’
 b. *Ze speelt de cello in een strijkkwartet*
 She plays the cello in a string-quartet
 ‘She plays the cello in a string quartet.’

The non-bare example in (23b) is fine, since there is usually only one cello in a string quartet. Secondly, musical instruments behave interestingly with respect to modification: the morphology indicates whether an adjective indicates a subtype of instrument, or a type of music. Consider the examples in (24).

- (24) a. *Ze speelt gitaar*
 She plays guitar
 ‘She plays guitar.’ (CGN)
 b. *Ze speelt akoestisch gitaar*
 She plays acoustic guitar
 ‘She plays guitar acoustically.’ (CGN&27MW)
 c. *Ze speelt akoestische gitaar*
 She plays acoustic guitar
 ‘She plays (an) acoustic guitar.’ (CGN&27MW)
 d. **Ze speelt op een akoestisch gitaar*
 She plays on an acoustic guitar
 ‘She plays on an acoustic guitar.’
 e. *Ze speelt op een akoestische gitaar*
 She plays on an acoustic guitar
 ‘She plays on an acoustic guitar.’

The unmodified instrument in (24a) can only refer to the kind being an instrument. However, when modified, you can get two readings, depending on the morphology of the adjective. In (24b), where the adjective does not have a final *-e*, you get the reading that she is playing on a guitar, and the kind of music she is playing is acoustic. In (24c), where the adjective has a final *-e*, you get the reading that she is playing on a specific kind of guitar, namely an acoustic guitar: the final *-e* indicates that the instrument involved is a subtype of the unmodified instrument, whereas an adjective without the final *-e* indicates that it involves playing a type of music. This contrast is visible in

(24d-e): *playing on* always selects the instrument, so (24e) is fine. One cannot play on a type of music, so (24d) is ungrammatical.

A third observation is that, whereas all musical instrument nouns can occur bare in certain situations, including relatively obscure ones, as in (25a), and even including imaginary instruments, like (25b), musical instruments described by brand names can never be bare, as the ungrammaticality of (25c) shows.

- (25)
- a. Hij speelt ocarina
He plays ocarina
'He plays ocarina.'
 - b. Hij speelt luchtgitaar
He plays air-guitar
'He plays air guitar.'
 - c. *Hij speelt Stradivarius
He plays Stradivarius
'He plays Stradivarius.'

Since these observations are not directly relevant to our story, we will not discuss them in the remainder of this thesis.

This subsection showed that musical instrument nouns can be bare and non-bare, and that the distribution of the determination of musical instrument nouns is not random. Certain contexts force the musical instrument noun to be bare, while others do not allow a bare noun. Finally, there are contexts that allow both a bare and a non-bare musical instrument noun, but the situations that are described with either form can (but do not have to) vary. The next section proposes two frameworks that we will use to account for the pattern of determination of musical instrument nouns laid out in this section.

4 Theoretical framework

In this section, we give an overview of two frameworks we will use extensively. They are not mutually exclusive, but are complementary. The first is a framework of *referential semantics*: it deals with the references that definite noun phrases and their bare counterparts can have. First, in section 4.1, we introduce the different referential categories a definite noun can be part of: regular definites, generic definites, and weak definites. Then, we elaborate on an analysis by Aguilar-Guevara and Zwarts (2010), that treats weak definites as referring to kind individuals. The second framework we use is one of *lexical semantics*: it deals with the meaning encoded in lexical items. We used the lexical semantic framework from Pustejovsky (1995): his framework can account for the polysemous nature of words by organizing all lexical information in different levels of representation. We elaborate on this framework in section 4.2. This entire section aims to elaborate both frameworks, without going into the challenges musical instrument nouns might pose. Finally, in section 4.3, we show how a referential and a lexical framework can work together. The next section, section 5, applies the two frameworks laid out in this section to musical instrument nouns.

4.1 Referential Semantics

4.1.1 Referential categories

Traditionally, definite noun phrases were described in terms of uniqueness: a definite noun phrase presupposes that there is one salient entity in the context that satisfies the description, as is the case for *the cup* and *the drawer* in (26a). Such examples are referred to as *regular definites*. Löbner (1985) and Carlson and Pelletier (1995), among others, noted that not all definite noun phrases behave in terms of uniqueness. Definite noun phrases can also be *generic* (Carlson and Pelletier 1995, Carlson and Sussman 2005, Katz and Zamparelli 2005, Farkas and De Swart 2007, Carlson 2009, Aguilar-Guevara and Zwarts 2010). Genericity can be divided in different phenomena. The first, and most distinctive, is the reference to an entire kind, as in (26b), where the tiger refers to the species. Other types of genericity include characterizing sentences, that refer to a general property of all members of the kind, as in (26c): all dodos have a purple beak. Finally, a definite noun can occur in an episodic context, for example in (26d). Here, it is not a property of all mobile phones that they are found in Africa: this sentence conveys that it is common for mobile phones to be found in Africa.

- (26)
- a. I put the cup on the drawer.
 - b. The tiger vanished from Western Asia.
 - c. The dodo has a purple beak.
 - d. The mobile phone is also found in Africa.

Regular definites can be distinguished from generic definites rather easily: a regular definite has the requirement that the referent is unique and familiar. The familiarity

requirement has some exceptions: for example, if a certain noun is strongly associated with a certain context, it can occur in definite form without having been introduced before. For example, in the context of a pharmacy, it is expected that there will be mention of medicine: *the medicine* can be used without confusion. Likewise, *the organ* can be used without introduction when the context mentions a church.

Generic kinds, like (26b), behave differently from other generic references, like (26c-d). Especially the contrast with general properties is prominent: for example, the definite noun phrase in (26c) can be replaced by a bare plural or an indefinite noun phrase, without changing its meaning: these statements still hold for all dodos. When the same is done for (26b), we find an entailment: the statements do no longer hold for all tigers, but to a subset thereof. In the examples given here, the same entailment is also found for the episodic context in (26d).

4.1.2 Weak definites as generic individuals

Besides regular and generic definites, there are some problematic definites, where the truth or falsity of a sentence does not depend on the identification of the (definite) noun. Such a noun is called a *weak definite*. Consider (27), taken from Aguilar-Guevara and Zwarts (2010):

(27) She is reading the newspaper.

In (27), *the newspaper* does not refer to a unique newspaper: the sentence is still fine in a context that involves more newspapers. In order for the sentence to be true, there must be some newspaper in the context, but which one exactly is not relevant: reading the newspaper is reading *a* newspaper, and more than that, namely gathering information (i.e. news). Weak definites have semantic enrichment of the noun: the noun does not refer to the physical object, but to a typical activity associated with the noun. Consider the example in (28):

(28) He went to the hospital.

Going to the hospital does not just mean going to a hospital(building): the weak definite *hospital* in (28) has the semantic enriched meaning that he went to the hospital to get *medical attention*. This particular example comes with an additional observation: *hospital* can differ in American and British English with respect to bareness. In the British English example in (29a), the weakly referential noun can be bare, while in the American English example in (29b), it cannot.

(29) a. He is in hospital.
b. He is in the hospital.

The British English example in (29a) is interesting, since it sets weak definites apart from regular and generic definites, that cannot be bare. However, as (29b) shows, it is not the case that all weak definites are or can be bare, so determination cannot successfully

separate (all) weak definites from other definites. Furthermore, it must be kept in mind that which nominals can be bare and which cannot is language-specific.

While it is easy to distinguish weak definites from regular definites or kind denotations, it can be hard to distinguish them from other generic nouns. Aguilar-Guevara and Zwarts (2010) analyze weak definites as kind referring expressions. Weak definites, in both episodic sentences, like in (30a), as well as in characterizing sentences like (30b), can refer to kinds.

- (30) a. She is reading the newspaper.
b. The hospital is the place where most children are born.

If *newspaper* and *hospital* were regular definites, the definite article would be licensed by the uniqueness of a single newspaper in the context of (30a), and a single hospital in the context of (30b). However, the definite article in weak definites does not require uniqueness on the level of individual objects. Aguilar-Guevara and Zwarts (2010) analyze weak definites as (generic) kind individuals to circumvent this problem. *Newspaper* in (30a) refers to a unique kind of newspapers, and *hospital* in (30b) refers to a unique kind of hospitals. The definite article is licensed by the uniqueness of the kind, and not by the uniqueness of a single newspaper or hospital. Another advantage of analyzing weak definites as kind individuals is that they remain felicitous even when there is more than one salient entity in the context that fits its description. For example, (30a) is still true, relevant and felicitous when she is reading different newspapers consecutively.

It must be noted that this enriched meaning of weak definites does not only arise with definite nominals. Consider the example in (31):

- (31) He is in jail.

What (31) conveys is not that he is in the prison building, but that he is there incarcerated. So, the observations this section gives for weak definite nominals can be extended to other weak nominals. Before seeing how a framework of referential semantics can account for the determination of musical instrument nouns, we first have a look at a framework of lexical semantics.

4.2 Lexical semantics

A lexical semantic framework deals with the organization of lexical information in the lexicon. We adopt the lexical framework of Pustejovsky (Pustejovsky 1995, Cruse 2011). Lexical items are often polysemous, so any lexical semantic theory should capture the behavior of polysemous nouns. Pustejovsky (1995) provides a formal description of language, where each lexical item has different levels of representation:

1. The ARGUMENT STRUCTURE, that specifies the logical arguments of a lexical item (i.e. how many arguments the nominal takes and what they are typed as)
2. The EVENT STRUCTURE, that defines the event type of a lexical item

3. The QUALIA STRUCTURE, that specifies modes of explanation, made up of different relations essential to the meaning of a lexical item

The ARGUMENT STRUCTURE is fairly straightforward. For example, *man* has one argument: a man is a sort of *human*. Likewise, *knife* also has only one argument: a knife is a type of *tool*. A noun like *book* has two arguments: a book is both a type of *information* and a type of *physical object*.

The EVENT STRUCTURE is not present in every noun: a knife and a book have no EVENT STRUCTURE at all. A noun like *symphony* has one argument, namely, it is a piece of music, and it has the EVENT STRUCTURE of being a *process* of performing that musical piece. Other types of events include *states* and *transitions*.

Thirdly, Pustejovsky (1995) proposes a QUALIA STRUCTURE. Lexical items encode a lot of semantic information in so-called *qualia*: a structural representation of a lexical item where different relations that are essential to the meaning of this lexical item are encoded. The QUALIA STRUCTURE is made up of four qualia:

1. The CONSTITUTIVE quale denotes the relation between an object and its constituents, for example:

woman: female

hand: part-of-body

2. The FORMAL quale distinguishes the object within a larger domain, for example:¹³

knife: tool

book: physical object that holds information

3. The TELIC quale denotes the purpose and function of the object, for example:

cookie: eating

book: reading

4. The AGENTIVE quale describes the factors involved in the origin of the object, for example:

book: writing

symphony: composing

The full structure of a lexical item encodes all mentioned levels of representation, if they are present in that lexical item. We repeat two examples from Pustejovsky (1995): one simple example, *knife* and one complex example, *symphony*.

¹³For simple objects like *knife*, that only have one argument, the FORMAL quale encodes the same information as the argument structure. Complex objects that have more than one argument, like *book*, the FORMAL quale encodes how the different arguments are in relation with each other.

$$\left[\begin{array}{l} \mathbf{knife} \\ \text{ARGSTR} = [\text{ARG}_1 = x : \textit{tool}] \\ \text{QUALIA} = \left[\begin{array}{l} \text{FORMAL} = x \\ \text{TELIC} = \textit{cut}(e, x, y) \end{array} \right] \end{array} \right]$$

The ARGUMENT STRUCTURE of a knife is that it is a tool (x). As mentioned above, a knife does not have any EVENT STRUCTURE. As for the QUALIA STRUCTURE, the FORMAL quale is identical to the ARGUMENT STRUCTURE: the formal characteristics of being a knife that is a tool: (x). The TELIC quale covers the action that a knife is used for: an event (e) of cutting something (y), using the knife (x).

$$\left[\begin{array}{l} \mathbf{symphony} \\ \text{ARGSTR} = [\text{ARG}_1 = x : \textit{music}] \\ \text{EVENTSTR} = [\text{E}_1 = e_1 : \textit{process}] \\ \text{QUALIA} = \left[\begin{array}{l} \text{FORMAL} = \textit{perform}(e_1, w, x) \\ \text{TELIC} = \textit{listen}(e', z, e_1) \\ \text{AGENTIVE} = \textit{compose}(e'', y, x) \end{array} \right] \end{array} \right]$$

The ARGUMENT STRUCTURE of a symphony is that it is a piece of music (x); the EVENT STRUCTURE is that it covers a process of performing this piece. As for the QUALIA STRUCTURE, the FORMAL quale covers the performance: there is a performance event (e_1), where musicians (w) perform the symphony in the sense of it being a musical piece (x). The TELIC quale covers the event of listening to the performance (e'), where a listener (z) listens to the performance (e_1). Finally, the AGENTIVE quale covers the process of composing (e'') the symphony (x), done by the composer (y).

Most words have relatively simple meanings, that can be captured by a structure like the one for *knife* above. However, words can be lexically ambiguous: these words have different meanings encoded in their lexical structure. The interpretation of an ambiguous word depends on the context. For some words (homonyms), the different meanings are not obviously connected, as in *bank*: among other things, it includes a river bank and a financial institution. For each crucially different meaning, there needs to be a different lexical structure in the lexicon: *bank* needs a separate lexical structure for *river bank* and for *financial institution*. The latter structure is still polysemous, but in a more connected sense: the meanings are different, yet related. A *bank* can be the organization that is the financial institution, but also the building in which the organization is housed. Another example of a polysemous word with connected senses is *symphony*, which denotes both a (written) musical piece, and the performance of that piece. Yet another example, *newspaper*, can denote the physical object, the information contained in the newspaper, and even the organization. Pustejovsky proposed his framework to account for this polysemy: his framework can incorporate all related meanings in just one lexical

structure. Besides the meaning alternation product/producer mentioned for *newspaper*, a few examples include count/mass (fish: animal/meat), place/people (city, school) and figure/ground (door: physical object/door opening). These meanings are what Cruse (2011) calls *facets*. The semantic boundary between the two meanings is not that sharp: both readings are independent, but do not exclude each other. An ambiguity as in (32) would never arise for true homonyms like *bank*:

- (32) A Do you like fish?
 B (i) Yes, it tastes delicious.
 (ii) No, I don't like sea animals.

In (32), *fish* denotes both the animal and the food prepared from the animal. It is therefore possible to imagine a situation where both of B's responses are true.¹⁴ To explain the polysemous behavior of nominals like *fish*, Pustejovsky proposes the notion of *dotted objects*. Polysemous words with two separate senses, like *fish* in (32), have an extra, dotted sense, that is the combination of both original senses of the polysemous word. We will elaborate on the notion of dotted objects for another polysemous word, *book*. Consider the sentences in (33), taken from Pustejovsky (1995):

- (33) a. This is a long book.
 b. Mary sold the book to John.

The first sense, (σ_1), is demonstrated in (33a), and denotes the information. The second sense, (σ_2), is demonstrated in (33b), and denotes the physical object. These two meanings are encoded in the ARGUMENT STRUCTURE. The third sense is a combination of the previous two: $\sigma_1 \cdot \sigma_2$. This third sense is the dotted object, as indicated by the dot between the two combined senses. The dotted object is not encoded in the ARGUMENT STRUCTURE, but in the QUALIA STRUCTURE. The entire object contains all three senses of the polysemous word: $\{\sigma_1 \cdot \sigma_2, \sigma_1, \sigma_2\}$. The lexical structure for *book* is given below.

¹⁴In B's responses, it is immediately clear whether B refers to the animal or the food prepared from it: one has to refer back to the food (mass use) with the neutral pronoun *it*. Consider the examples in (i), as if they were B's responses:

- (i) a. Yes, they taste delicious.
 b. Yes, it tastes delicious
 c. No, I don't like them.
 d. No, I don't like it.

The pronoun in (ia,c) refers to the animal, whereas *it* in (ib,d) refers to the food.

$$\left[\begin{array}{l} \mathbf{Book} \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG}_1 = x : \sigma_1 : \textit{information} \\ \text{ARG}_2 = y : \sigma_2 : \textit{physical object} \end{array} \right] \\ \text{QUALIA} = \left[\begin{array}{l} \textit{Dotted object} = \sigma_1 \cdot \sigma_2 \\ \text{FORMAL} = \textit{hold}(y, x) \\ \text{TELIC} = \textit{read}(e, w, x, y) \\ \text{AGENTIVE} = \textit{write}(e', v, x, y) \end{array} \right] \end{array} \right]$$

Besides the two original senses, displayed in the ARGUMENT STRUCTURE, and the dotted object, displayed in the QUALIA STRUCTURE, there are two other things contained in the QUALIA STRUCTURE. First, the FORMAL quale, which denotes the relation between the first two senses: a book is a physical object that holds information. The TELIC quale denotes the activity typically associated with books: the event (e) of reading a book (the information x held by the physical object y), as done by a reader w. The AGENTIVE quale displays how a book comes about: the event (e) of being written by a writer (v). Finally, the noun *book* can also denote the entire dotted object. Consider (34).

(34) I like the book.

Out of context, it is unclear whether (34) denotes the physical object (i.e. a specific edition of the book), or the information (i.e. the story told in the book). The dotted object applies to situations where it is not immediately clear whether the information or the physical object is intended, or in situations where this distinction is not relevant.

4.3 Unifying a referential and lexical perspective

At first glance, it seems that the two frameworks layed out in this section do not have much in common. A referential framework applies at the DP-level, while a lexical framework works at the noun-level. However, this should not be seen as a disadvantage: the two frameworks do not interfere with each other, they work side-by-side to provide a complete interpretation of a sentence. Let us demonstrate this by looking at the final example from the previous subsection, the complex noun *book*. This noun has two different senses: it is *information*, as well as the *physical object* holding this information. The complete dotted object contains both senses. Consider the examples in (35).¹⁵

- (35) a. The book is long.
 b. Mary sold the book to John.
 c. The book was not originally a medium for expressive liberty.
 d. I like the book.

¹⁵(ia) is adapted, and (ib) and (id) are taken from Pustejovsky (1995). (ic) is taken from the Wikipedia entry for the history of books: http://en.wikipedia.org/wiki/History_of_books.

From a referential perspective, the noun phrase in (35a) is a regular definite: in the context, there must be one specific book already salient in order for (35a) to make sense. From a lexical perspective, *book* denotes not the physical object, but the information. In (35b), from a referential perspective, the noun phrase is again a regular definite. From a lexical perspective however, *book* in (35b) does denote the physical object. *The book* in (35c) has a generic reference: it refers to the kind, while lexically, *book* denotes the information. Finally, in (35d), *the book* is again a regular definite. Lexically, *book* denotes the dotted object: it denotes both the information and the physical object. The examples in (35) are just a few that show that the referentiality of a noun phrase is independent of the lexical meaning of the noun.

In the following section, we will apply the two frameworks presented in this section to musical instrument nouns. For a referential framework, this is demonstrated in section 5.1, while a lexical approach is continued in section 5.2. Musical instrument nouns are polysemous: not only can a musical instrument noun denote the physical object, they can also denote the music that is produced by the instrument. In section 4.3, we have shown how a referential and a lexical framework can work side-by-side. In section 6.1, we will show how a referential and a lexical framework can be applied to musical instrument nouns.

5 Theoretical approaches applied to our data

This section applies the frameworks laid out in the previous section to our musical instrument data. First, in section 5.1, we show how musical instrument nouns can be classified with respect to their referential properties. We will also show that referential semantics alone cannot account for the differences in determination of musical instrument constructions. Secondly, in section 5.2, we show for the lexical semantics of Pustejovsky (1995) that it makes good progress in accounting for the determination of musical instrument nouns, but that his framework is still not sophisticated enough to account for all the patterns found in musical instrument constructions.

5.1 Musical instrument nouns and referential semantics

We have seen how nominals behave with respect to their referentiality. A definite noun phrase can be a regular definite, a weak definite, or it can have a generic reference. This distinction is also present in musical instrument nouns. Classifying a musical instrument noun as one of these referential categories can help explain the pattern of the bareness of certain musical instrument constructions. We have seen in section 4.1 that regular definites cannot be bare. This also holds for musical instrument nouns, as is shown by the ungrammaticality of the examples in (36):

- (36) a. Misschien vindt president Clinton tijd om op *(de) saxofoon te spelen
Maybe finds president Clinton time to on (the) saxophone to play
die hij in Polen heeft gekregen
that he in Poland has received
'Maybe president Clinton will find time to play on the saxophone that he received in Poland.' (27MW)
- b. Zodra hij aan *(de) piano zit valt elk ongemak van hem af
As-soon-as he at the piano sits falls every discomfort from him off
'As soon as he sits at the piano, every discomfort is from him.' (27MW)

Musical instrument nouns that denote the kind, like the examples in (37), have to be non-bare as well: the bare form is ungrammatical.

- (37) a. *(De) panfluit is een duizenden jaren oud blaasinstrument
(The) panpipe is a thousands years old wind-instrument
'The panpipe is a millennia-old wind instrument.' (27MW)
- b. *(Het) klavecimbel wordt gezien als een primitieve voorloper van de
(The) harpsichord is seen as a primitive precursor of the
moderne piano
modern piano
'The harpsichord is seen as a primitive precursor of the modern piano.'
(27MW)

We have seen earlier that musical instrument nouns can be bare. For one, a musical instrument noun can be bare when it denotes the *music* being made by that instrument. However, these musical instrument nouns can be said to display mass use. The musical instrument noun in (38a) denotes the music, and displays mass use. The non-musical instrument noun in (38b) is a mass noun; the musical instrument noun in (38c) does not display mass use.

- (38) a. Ik hoor (veel) piano
 I hear (much) piano
 ‘I hear a lot of piano music.’
 b. Ik drink (veel) koffie
 I drink (much) coffee
 ‘I drink a lot of coffee.’
 c. Ik speel (veel) gitaar
 I play (much) guitar
 ‘I play a lot of guitar.’

In (38a), the musical instrument noun denotes the music, which is not the case for the musical instrument noun in (38c). All sentences are quantified with *veel* ‘much, many’. (38b) conveys that I drink large amounts of coffee. Similarly, (38a) conveys that I hear large amounts of piano music. Something different happens in (38c): what is conveyed here is that I often play the guitar: one cannot play large amounts of guitar. Only musical instrument nouns that denote the music can have this mass use.

We have seen in section 4.1 that only weak definites can be bare, and this is also the case for weak musical instrument nouns. Both examples in (39a,c) are weak definites and can be bare, as shown by (39b,d).¹⁶

- (39) a. Ze won de tweede prijs met de viool
 She won the second prize with the violin
 ‘She won the second prize with the violin.’ (27MW)
 b. Ze won de tweede prijs met viool
 She won the second prize with violin
 ‘She won the second prize with violin.’ (27MW)
 c. Ze werden op de piano begeleid door Brian
 They were on the piano accompanied by Brian
 ‘They were accompanied on the piano by Brian.’ (27MW)
 d. Ze werden op piano begeleid door Brian
 They were on piano accompanied by Brian

¹⁶Not all speakers agree on the grammaticality of the d-example of (39). However, rephrasing this sentence will probably render it grammatical for all speakers:

- (i) Ze werden door Brian op piano begeleid
 They were by Brian on piano accompanied
 ‘They were accompanied on piano by Brian.’

‘They were accompanied on piano by Brian.’

At first glance, it seems that certain generic uses of musical instrument nouns can be bare as well, as shown by the examples in (40):¹⁷

- (40) a. Voor die emoties is (de) viool heel geschikt
For those emotions is (the) violin very fit
‘The violin is ideal for those emotions.’ (27MW)
- b. Als pianist is hij minder vertrouwd met (de) viool
As pianist is he less familiar with (the) violin
‘As a pianist he is less familiar with the violin.’ (27MW)
- c. (De) cello betekent alles voor me
(The) cello means everything for me
‘The cello means everything to me.’ (27MW)
- d. Ik heb een ongewone benadering van (de) piano
I have an unusual approach of (the) piano
‘I have an unusual approach of the piano.’ (27MW)

However, this is not something peculiar to just musical instrument nouns. In section 4.1, we laid out a framework by Aguilar-Guevara and Zwarts (2010). They proposed an analysis of weak nominals that analyzed them as kind-referring individuals. These generic uses of musical instrument nouns in (40) can be analyzed as being kind-referring individuals, which removes the asymmetry between musical instrument nouns and other nouns: these bare uses are still weak nominals.

This section showed how a referential account deals with musical instrument nouns. Regular definites, as well as kind-denoting definites, cannot occur determinerless. Musical instrument nouns that can be bare are weak definites, when analyzed as kind-referring individuals, following Aguilar-Guevara and Zwarts (2010). Musical instruments that denote the music can have a mass use, which also allows them to be bare. The next section shows how musical instrument nouns can be applied to the lexical framework by Pustejovsky (1995).

5.2 Musical instrument nouns and lexical semantics

We have seen how Pustejovsky (1995) encodes roles that are typically associated with a lexical item, within that lexical item. Now we will see how this QUALIA STRUCTURE applies to musical instruments. We propose that musical instrument nouns can be considered dotted objects: they do not just denote the physical object, but also the

¹⁷The corpus gave the non-bare forms, our intuitions confirmed their bare counterparts.

music the instrument produces:

$$\left[\begin{array}{l} \mathbf{saxophone} \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG}_1 = x : \textit{physical object} \\ \text{ARG}_2 = y : \textit{music} \end{array} \right] \end{array} \right]$$

There are different roles associated with a musical instrument, that should be incorporated in the QUALIA STRUCTURE: building a musical instrument, playing on a musical instrument, and listening to a musical instrument. *Building* is an obvious AGENTIVE quale: a musical instrument is brought into being by building. Likewise, *listening* is an obvious TELIC quale: an instrument is played to be listened to. It is unclear, however, what a typical quale for *playing* would be. *Playing* serves a double function: on the one hand, the purpose of musical instruments (i.e. the physical object) is to be played on, so *playing* would be the TELIC quale. On the other hand, when talking about the music, then *playing* would be the AGENTIVE quale, since the music only comes about by playing. However, the TELIC and AGENTIVE quale are already occupied by *listening* and *building*, respectively. One way to circumvent this problem, is to make *playing* the FORMAL quale: after all, one can imagine that the relation between the physical object *saxophone* and the *saxophone*-music comes about through playing.¹⁸ The lexical structure of *saxophone* would then look like below:

$$\left[\begin{array}{l} \mathbf{saxophone} \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG}_1 = x : \textit{physical object} \\ \text{ARG}_2 = y : \textit{music} \end{array} \right] \\ \text{QUALIA} = \left[\begin{array}{l} \text{Dotted object} = x \cdot y \\ \text{FORMAL} = \textit{play}(e, w, x, y) \\ \text{TELIC} = \textit{listen}(e', v, y) \\ \text{AGENTIVE} = \textit{build}(e'', z, x) \end{array} \right] \end{array} \right]$$

In the structure above, the FORMAL quale is used to describe the event (e) of playing the physical object (x) by the musician (w) to produce music (y). The TELIC quale describes the event (e') of listening, by a listener (v), to the music (y). The AGENTIVE quale describes the event (e'') of building an instrument (x), as done by the builder (z).

Now that we have seen what makes up the lexical structure of musical instrument nouns, we will investigate how this structure, and especially the QUALIA STRUCTURE, can help explain the behavior of musical instrument nouns; why they are bare in certain contexts, and non-bare in others. Let us first discuss the bare examples in (41).

- (41) a. Ik speel gitaar
 I play guitar
 'I play guitar.' (CGN)

¹⁸For now, this raises the question of the validity of Pustejovsky's qualia structure in general: his qualia are tied to specific lexical items, which may prove too rigid for complex nominals like musical instrument nouns.

- b. Catelijne heeft met accordeon de eerste prijs gewonnen
 Catelijne has with accordion the first prize won
 ‘Catelijne has won the first prize with accordion.’ (27MW)

The musical instrument noun in (41a) refers to *playing*: the quale is already made explicit by the verb. The musical instrument noun in (41b) also refers to *playing*, but there is nothing in this construction making it explicit. Bare musical instrument nouns can be the referents of quale. Bare musical instrument nouns can also denote the argument that is the music, as shown in (42). We have already seen throughout this thesis that a musical instrument noun that denotes the physical object cannot be bare.

- (42) Ook in muziek uit Afrika kom je accordeon tegen
 Also in music from Africa come you accordion against
 ‘One also encounters accordion in music from Africa.’

The musical instrument noun in (42) denotes the music produced by accordions. However, as already mentioned in section 5.1, this is mass use. Non-bare musical instrument constructions can denote arguments, as (43) shows.

- (43) a. Het orgel staat achter een smeedijzeren hekje
 The organ stands behind a wrought-iron fence
 ‘The organ stands behind a wrought iron fence.’ (27MW)
- b. Er speelde een kwintet met de piano als doordringendste stem
 There played a quintet with the piano as most-prominent voice
 ‘There played a quintet with the piano as the most prominent voice.’ (27MW)

The musical instrument noun in (43a) denotes the *physical object* organ, whereas the musical instrument noun in (43b) denotes the *music*: both part of the ARGUMENT STRUCTURE. Non-bare musical instrument constructions can also be the referents of quale, as demonstrated by the examples in (44): the musical instrument noun in both (44a) and (44b) refers to *playing*.

- (44) a. Ik heb een ongewone benadering van de piano
 I have an unusual approach of the piano
 ‘I have an unusual approach to the piano.’ (27MW)
- b. Met de saxofoon won hij de tweede prijs
 With the saxophone won he the second prize
 ‘He won the second prize with the saxophone.’ (27MW)

Pustejovsky’s lexical structure cannot account for all data. Consider again the metonymic example, where a singer usually brings a guitarist and a violinist to accompany her voice:

- (45) De viool was niet meegekomen
 The violin had not come-along
 ‘The violin had not come-along.’ (27MW)

The musical instrument noun in (45) does not denote an argument, but neither is it the referent of one of the qualia. Something else is needed to convey that a musical instrument noun can be used to denote not the instrument, but the musician, a meaning that is not encoded in Pustejovsky's structure at all. Other examples that do not work flawlessly in Pustejovsky's framework are the ones in (46):

- (46) a. Hij is docent blokfluit aan het conservatorium van Münster
 He is teacher recorder at the conservatory of Münster
 'He teaches recorder at the Conservatory of Münster.' (27MW)
- b. De panfluit moet en zal op het conservatorium blijven
 The panpipe must and will on the conservatory stay
 'The panpipe must stay and will stay at the conservatory.' (27MW)

In the examples in (46), the best approximation would be that the musical instrument noun refers to *playing*. However, there is something more going on in these examples, that cannot be captured by Pustejovsky's framework. The musical instrument noun in (46a) will involve *playing*, since teaching recorder mostly concerns learning people how to play it. However, there is something more encoded here than just playing; all other activities associated with teaching a musical instrument are also present. However, to convey this message properly, a TEACHING-qualia would be needed, that encompasses the musical instrument in the broadest sense. A similar story holds for (46b): it is not one specific panpipe that has to stay at the conservatory; rather, it is the major panpipe that must stay, the option to study panpipe. Again, this denotation of the musical instrument is not captured in the argument structure, and neither is it captured in the QUALIA STRUCTURE. Since Pustejovsky's structure is tied to specific lexical items for each noun, it is hard to fit the examples in (46) in his framework.

So, the determination of musical instrument nouns can be partly explained by a lexical semantic theory, like the one Pustejovsky proposed: a bare musical instrument noun denotes the music, or is the referent of a qualia of the QUALIA STRUCTURE. Non-bare musical instrument nouns can also be the referents of qualia, or they can denote either argument of the ARGUMENT STRUCTURE. While this is a step in the right direction, Pustejovsky's lexical approach is not sufficient in fully explaining the pattern of determination of musical instrument nouns: certain examples do not fit his lexically fixed QUALIA STRUCTURE. In the next section, we propose a framework that relies on Pustejovsky's framework, but that is less rigid when it comes to the different meanings encoded in a single nominal, so that it can account for all examples above.

6 A modified lexical semantics for musical instrument nouns

In the previous section we have seen that the determination of musical instrument nouns can be explained partly by a referential framework, and largely by a lexical semantic framework. This section proposes a modified lexical semantics for musical instrument nouns, that can capture everything Pustejovsky’s framework can, while taking into account that some constructions need a certain amount of ambiguity. First, we continue with what we started in section 4.3, and see how a referential and a lexical framework can apply simultaneously to musical instrument nouns in section 6.1. Then, in section 6.2, we go deeper into the lexical framework, that can account for the determination of musical instrument constructions. Section 6.3 gives a broader extension of the lexical framework proposed, by pointing out parallels between musical instrument nouns and other classes of nouns.

6.1 Referentiality on top of a lexical framework

Musical instrument nouns have both a lexical and a referential interpretation. Consider the example in (47):

- (47) Ook in muziek uit Afrika kom je de accordeon tegen
Also in music from Africa come you the accordion against
‘One also encounters the accordion in music from Africa.’ (27MW)

The musical instrument noun in (47) above gets a generic interpretation: it is not a property of all accordions that you encounter them in music from Africa, but it is common for accordions to be found in music from Africa. Next to this generic interpretation, the musical instrument noun also denotes the music produced by the instrument: it is not the physical object accordion that can be found in music from Africa, it is the sound produced by accordions that one encounters in the music. A lexical framework and a referential framework work side-by-side to provide the complete interpretation of a sentence. A lexical framework is applied at the noun-level, while a referential framework applies to the DP: they do not interfere with each other. Note that it is not the case that any denotation of music has a generic reference, as demonstrated by the example in (48).

- (48) Er speelde een kwintet met de piano als doordringendste stem
There played a quintet with the piano as most-prominent voice
‘There played a quintet with the piano as the most prominent voice.’ (27MW)

The musical instrument noun in (48) denotes the music: in the context of musical instruments, the *voice* denotes not the physical object, but the music that is made by the instrument. However, this sentence does not have a generic interpretation: the context mentions a specific performance of a quintet. Since (48) involves a single event, a single piano is salient in the context, which rules out a generic interpretation.

In some cases, the interpretation from the referential framework overlaps with the interpretation from the lexical framework, as (49) shows:

- (49) *(Het) orgel staat achter een smeedijzeren hekje
 (The) organ stands behind a wrought-iron fence
 ‘The organ stands behind a wrought iron fence.’ (27MW)

From a referential perspective, *organ* in (49) is a regular definite. There is one salient organ in the context that *organ* in (49) refers to: *organ* denotes the physical object. From a lexical perspective, the musical instrument noun in (49) cannot be bare, so it denotes part of the ARGUMENT STRUCTURE. In this case, *organ* denotes the physical object: the interpretation of the musical instrument noun according to a referential and lexical framework overlaps.

As shown by the examples above, both a referential and a lexical framework can be applied to musical instrument nouns. The frameworks are not mutually exclusive: as section 4.3 already mentioned, they are applied to different levels. In the next section, we will propose a modification of Pustejovsky’s lexical framework. We do not propose our own referential framework, but adopt the analysis of Aguilar-Guevara and Zwarts (2010) that weak nominals can be analyzed as kind-referring individuals. Generic uses usually do not have a bare form, only weak nominals can be bare. For musical instrument nouns, it seems as if not only weak nominals can have a bare form, but that generic uses of musical instrument nouns can be bare as well. Analyzing weak nominals as kind-referring individuals removes this asymmetry between musical instrument nouns and other nouns.

6.2 A modified lexical framework

While Pustejovsky’s lexical structure is sufficient for most nouns, it is too limited for the purpose of musical instruments. It only allows one role per quale, and we have seen in section 5.2 that the verb *spelen* ‘play’ can be both TELIC and AGENTIVE. Pustejovsky’s framework is limited in this respect: there is nothing that principally excludes the use of more qualia in a lexical structure. Furthermore, his quale are tied to specific lexical items, but not all examples are easily classified as one of his quale. Some examples are listed in (50).

- (50) a. Hij is docent blokfluit aan het conservatorium van Münster
 He is teacher recorder at the conservatory of Münster
 ‘He teaches recorder at the Conservatory of Münster.’ (27MW)
 b. Als pianist is hij minder vertrouwd met de viool
 As pianist is he less familiar with the violin
 ‘As a pianist he is less familiar with the violin.’ (27MW)
 c. De cello betekent alles voor me
 The cello means everything for me
 ‘The cello means everything to me.’ (27MW)

- d. Cello betekent alles voor me
 Cello means everything for me
 ‘Cello means everything to me.’

These examples display an ambiguity. As already mentioned in section 5.2, the musical instrument noun in (50a) seems to not just refer to playing, but more to a (in Pustejovsky’s framework non-existent) ‘teaching’ quale. In (50b), a musician that usually plays the piano is now playing the violin. The non-bare musical instrument noun here seems to denote the physical object that the musician plays, but also directly refers to the skill that is required for playing an instrument. The minimal pair in (50c-d) comes with a meaning difference. In both examples, the musical instrument noun can refer to playing or listening to the cello. However, for (50c) it is also possible that it refers to a specific cello (i.e. a physical object), that has much sentimental value to the speaker of (50c). No such meaning is available for (50d). It is clear that the nominals in (50) do not denote part of the ARGUMENT STRUCTURE, since they do not refer to the physical object or the music. However, it is not always clear to what quale these nominals should refer, since the quale are tied to specific lexical items.

Recall from section 5.2 that musical instrument nouns have two arguments encoded in their ARGUMENT STRUCTURE: they can denote the physical object, as well as the music. What is crucial, is that the music only comes about through the physical object: a musical instrument needs to be played in order for music to be produced. Musical instruments need a human user, an agent, in order for this second meaning to come about. What is happening in the examples in (50), is that this need for an agent is encoded in the musical instrument noun: it gets an **agentive reading**.¹⁹ The agentive reading can be, but does not have to be made explicit by the verb. Consider the examples in (51):

- (51) a. Ik speel piano
 I play piano
 ‘I play piano.’ (CGN)
- b. Catelijne heeft met accordeon de eerste prijs gewonnen
 Catelijne has with accordion the first prize won
 ‘Catelijne has won the first prize with accordion.’ (27MW)

In (51a), the agentive reading is made explicit by the verb. In (51b), the agentive reading also denotes playing, but there is nothing in this construction that explicitly states this agentivity. These examples can also be explained by Pustejovsky’s QUALIA STRUCTURE: one of his quale is the lexical item *playing*. However, we proposed the agentive reading to account for more activities revolving around musical instruments than just *playing*.

¹⁹Note that the agentive reading in the way we use it differs from Pustejovsky’s AGENTIVE quale, which denotes how something comes into being. Our agentive reading has more in common with Pustejovsky’s TELIC quale: the purpose and function of a musical instrument noun revolves around being played by a musician (agent).

This is the case for the examples in (52), that do not fit in perfectly with Pustejovsky’s qualia.

- (52) a. Hij is docent blokfluit aan het conservatorium van Münster
 He is teacher recorder at the conservatory of Münster
 ‘He teaches recorder at the Conservatory of Münster.’ (27MW)
- b. Saxofoon is op conservatoria vreselijk populair bij vrouwen
 Saxophone is at conservatories terribly popular with women
 ‘Saxophone is at conservatories terribly popular with women.’ (27MW)

We have already seen in section 5.2 that (52a) does not just revolve around playing, but that there is a broader agentive activity going on. This agentivity is made explicit by *docent* ‘teacher’. In (52b), we have the same agentive reading of studying, without it being made explicit by a verb like *studying* or a noun like *teacher*.

So, on the lexical level, musical instrument nouns can denote the physical object, the music, and it can get an agentive reading. Note that the first two meanings are the same as the ones encoded in Pustejovsky’s ARGUMENT STRUCTURE. The agentive reading is part of what we call RELATIONAL PROPERTIES, which replaces Pustejovsky’s QUALIA STRUCTURE, but still includes the dotted object. Below, we propose a modified version of Pustejovsky’s lexical structure for musical instrument nouns, that can account for their polysemy. We exemplify it again with the instrument *saxophone*.

$$\left[\begin{array}{l} \text{saxophone} \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG}_1 = x : \text{physical object} \\ \text{ARG}_2 = y : \text{music} \end{array} \right] \\ \text{RELATIONAL PROPERTIES} = \left[\begin{array}{l} \text{Dotted object} = x \cdot y \\ R(x, y) = \text{agentive} \end{array} \right] \end{array} \right]$$

Like in Pustejovsky’s framework, the lexical structure of musical instrument nouns holds the dotted object, which is the argument formed by combining the two (original) arguments x and y . What is added, are the RELATIONAL PROPERTIES. The RELATIONAL PROPERTIES describe the relation between the two arguments. For musical instrument nouns, the RELATIONAL PROPERTIES involve the relation between the physical object x and the music y . This is an *agentive* relation: music comes about by playing an instrument. Replacing the QUALIA STRUCTURE with RELATIONAL PROPERTIES has two consequences. The first is, that the agentive relation can be any relation: it is not tied to a specific lexical item, like Pustejovsky’s qualia were. While it is still possible that musical instrument nouns denote *playing* (which indeed marks a relation between x and y), it is also possible that there is some other agentive relation between x and y . The second result from replacing the QUALIA STRUCTURE with RELATIONAL PROPERTIES, is that the roles for *listening* and *building* are left out, since they only have one argument (respectively, the music and the physical object). We do not see this as a problem: since

these qualia only had one argument, they did not involve a relation between x and y : their function can be fulfilled by just the ARGUMENT STRUCTURE.

As we discussed in section 3, there is a lot of variation in musical instrument constructions with respect to their determination: in certain contexts, musical instruments cannot be bare. In other contexts, they are obligatorily bare, and in yet other contexts, they can be either. This section shows that our modified framework can account for the three different patterns of determination found in musical instrument constructions.

1. Constructions that are obligatorily non-bare denote part of the ARGUMENT STRUCTURE.
2. Constructions that are obligatorily bare denote the agentive relation of the RELATIONAL PROPERTIES.
3. Constructions that can be both bare and non-bare denote the agentive relation or the music.²⁰

Here, we discuss all three options, starting with constructions that are obligatorily non-bare. As mentioned above, these obligatorily non-bare phrases denote part of the ARGUMENT STRUCTURE. The examples in (53) refer to the physical object, and the example in (54) refers to the music.

- (53)
- a. *(Het) orgel staat achter een smeedijzeren hekje
(The) organ stands behind a wrought-iron fence
'The organ stands behind a wrought iron fence.' (27MW)
 - b. De uitroep wordt bliksemsnel op *(de) cello nagespeeld
The cry is lightning-fast on (the) cello after-played
'The cry is lightning-fast on the cello reenacted.' (27MW)
 - c. Zodra hij aan *(de) piano zit valt de zaal stil
When he at (the) piano sits falls the room silent
'The room fell silent as soon as he sat at the piano.' (27MW)

In all three examples in (53), the musical instrument noun refers to a specific instrument that is salient in the context, so the musical instrument construction cannot be bare. In (54), the definite musical instrument noun denotes not the physical object, but the music.

- (54) Ze stonden te walsen op *(de) viool van André Rieu
They stood to waltzing on (the) violin of André Rieu
'They were waltzing on the violin of André Rieu.' (27MW)

Secondly, musical instrument constructions that are obligatorily bare denote the agentive relation of the RELATIONAL PROPERTIES. This is exemplified in (55):

²⁰We must keep in mind that musical instruments that denote music display mass use.

- (55) a. Ik speel (?de) piano
 I play (the) piano
 ‘I play the piano.’ (CGN)
- b. Ik studeer (*de) gitaar
 I study (the) guitar
 ‘I study the guitar.’ (27MW)
- c. Ze won de eerste prijs voor (*de) viool
 She won the first prize for (the) violin
 ‘She won the first prize for the violin.’ (27MW)

We mentioned previously that the musical instrument constructions in (55a-b) are ungrammatical when they are non-bare. The non-bare musical instrument construction in (55c) is not ungrammatical, but comes with an unexpected meaning, namely that she won the first prize for someone else, namely for the violin. The musical instrument nouns in (55) do not denote the physical object or the music, but they describe typical activities associated with the relation between the two: (55a) and (55c) describe a situation involving *playing*, (55b) describes a situation involving *studying*. All describe an activity which involves the relation between the physical object and the music, since the music comes about through playing.

Thirdly, musical instrument constructions that can be both bare and non-bare denote the agentive relation, as in the examples in (56), or the music, as in the examples in (57).

- (56) a. Als pianist is hij minder vertrouwd met de viool
 As pianist is he less familiar with the violin
 ‘As a pianist he is less familiar with the violin.’ (27MW)
- b. Als pianist is hij minder vertrouwd met viool
 As pianist is he less familiar with violin
 ‘As a pianist he is less familiar with violin.’

In both (56a) and (56b), the musical instrument construction denotes the agentive relation: both the bare and the non-bare form denote some form of violin-playing. Both the bare and the non-bare musical instrument construction in (57) denote the music.

- (57) a. Ook in muziek uit Afrika kom je de accordeon tegen
 Also in music from Africa come you the accordion against
 ‘One also encounters the accordion in music from Africa.’ (27MW)
- b. Ook in muziek uit Afrika kom je accordeon tegen
 Also in music from Africa come you accordion against
 ‘One also encounters accordion in music from Africa.’

From the examples in (56) and (57) above, it seems as if any construction that can be both bare and non-bare does not come with a meaning difference. However, there are constructions where the bare form conveys something different than the non-bare form. This is the case for the minimal pair in (58):

- (58) a. Catelijne heeft met accordeon de eerste prijs gewonnen
 Catelijne has with accordion the first prize won
 ‘Catelijne has won the first prize with accordion.’ (27MW)
- b. Catelijne heeft met de accordeon de eerste prijs gewonnen
 Catelijne has with the accordion the first prize won
 ‘Catelijne has won the first prize with the accordion.’

The bare form in (58a) denotes the agentive relation: she won because of her accordion-playing. The non-bare form in (58b), however, is ambiguous: the most prominent meaning is again that she won because of her accordion-playing, so the musical instrument noun denotes the agentive relation. However, (58b), but not (58a), can be used in a situation where the contest was about who has the shiniest accordion: (58b) can still denote the physical object, while (58a) cannot. This is unsurprising, since we have seen (for example, in (53)) that to denote a physical object, one has to use a non-bare form. All in all, our lexical structure can account for all three patterns of determination found in musical instrument constructions. However, there are still some unresolved issues: we cannot explain why some musical instrument constructions, while denoting the agentive reading, are obligatorily bare, while others also allow a non-bare form. We therefore cannot rule out that there is still a certain amount of lexical specification involved in the determination of musical instrument nouns.

Let us return to the problems with Pustejovsky’s structure, which caused us to modify his framework in the first place. We have already seen how (59a) can be accounted for, by substituting the lexically specific *QUALIA STRUCTURE* with the more general *RELATIONAL PROPERTIES*. Being a teacher of a musical instrument involves the agentive relation between the physical object and the music: it involves teaching someone how to use a musical instrument to (properly) produce music. In Pustejovsky’s framework, the musical instrument noun in (59a) would denote the *playing-qualia*, which is not all there is to this situation of teaching. Also recall the example where a singer usually brings both a violinist and a guitarist to accompany her voice, when (59b) is uttered:

- (59) a. Hij is docent blokfluit aan het conservatorium van Münster
 He is teacher recorder at the conservatory of Münster
 ‘He teaches recorder at the Conservatory of Münster.’ (27MW)
- b. De viool was niet meegekomen
 The violin had not come-along
 ‘The violin had not come along.’ (27MW)

Pustejovsky’s framework had no way of accounting for the metonymic use of the musical instrument noun in (59b). The musical instrument construction does not denote the music or the physical object, nor does it refer to any of the qualia. Our framework can account for metonymic examples like (59b). In this example, *de viool* ‘the violin’ indicates a violinist: the person usually playing the violin. This already denotes the agentive relation (and not the physical object): the agentive relation is used to indicate the agent.

Not only can our analysis account for examples that Pustejovsky’s framework cannot, an analysis with unspecified RELATIONAL PROPERTIES has other advantages over an analysis with lexical items fixed in the QUALIA STRUCTURE. Consider the examples in (60).

- (60) a. Ze heeft gevoel voor het theatrale aspect van harp
 She has feeling for the theatrical aspect of harp
 ‘She has a sense of the theatrical aspect of harp.’ (27MW)
- b. Ik zit op piano
 I sit on piano
 ‘I take piano lessons.’

In (60a), it is unclear whether *harp* refers to (only) playing the harp, or whether it refers to playing plus something extra: performing. It is not crucial to the interpretation of (60a) to know the precise meaning of *harp*. What is clear, however, is that the musical instrument construction in (60a) denotes the agentive relation. Since the agentive relation is not linked to specific lexical items in the lexical structure, it can account for a certain amount of ambiguity. The construction in (60b) is used as an activity, to indicate that one is taking piano lessons: the musical instrument noun denotes the agentive relation.²¹

This subsection proposed a modification of Pustejovsky’s lexical framework to account for the lexical composition of musical instrument nouns. Where Pustejovsky’s framework could not account for ambiguous or metonymic examples, our modified framework can. We introduced RELATIONAL PROPERTIES, manifested in musical instrument nouns as the agentive relation, that is not tied to specific lexical items in the lexicon. Our lexical framework can still account for the three patterns of determination found in musical instrument nouns: constructions that are obligatorily non-bare denote part of the ARGUMENT STRUCTURE. In contrast, constructions that are obligatorily bare denote the agentive relation of the RELATIONAL PROPERTIES. Finally, constructions that can be both bare and non-bare denote the agentive relation or the music.²² In the next sub-

²¹This construction is used for all kinds of activities that involve lessons. It can be used for musical instrument lessons, but also for sports and other activities. The activity can be described by a noun, as in (ia-b), but also by a verb, as in (ic).

- (i) a. Ik zit op toneel
 I sit on theater
 ‘I take acting lessons.’
- b. Ik zit op voetbal
 I sit on football
 ‘I take football lessons.’
- c. Ik zit op schaken
 I sit on chess-playing
 ‘I take chess lessons.’

²²A lexical framework alone is not enough to fully explain everything: a referential framework is still needed to account for the contrast between (i) and (ii):

section, we will extend our lexical semantics of musical instrument nouns to two other classes of nouns, namely sport nouns and game nouns.

6.3 A more general picture

The previous subsection laid out a lexical structure for musical instrument nouns, repeated here.

$$\left[\begin{array}{l} \text{saxophone} \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG}_1 = x : \textit{physical object} \\ \text{ARG}_2 = y : \textit{music} \end{array} \right] \\ \text{RELATIONAL PROPERTIES} = \left[\begin{array}{l} \textit{Dotted object} = x \cdot y \\ R(x, y) = \textit{agentive} \end{array} \right] \end{array} \right]$$

In this lexical structure, what is really specific to musical instrument nouns is the ARGUMENT STRUCTURE: this differs for all nouns (although a lot of nouns will still have a physical object as one of their arguments). The RELATIONAL PROPERTIES are not linked to specific lexical items. For musical instrument nouns, the relation between the two arguments is an agentive relation: the music (y) comes about through playing the physical object (x). For other polysemous nouns, however, the RELATIONAL PROPERTIES can display other relations. For example, the relation between two senses of *newspaper*, company and print matter, is a source relation: the newspaper company produces the printed newspaper.

-
- (i) a. Ik componeer op de piano
 I compose on the piano
 ‘I compose on the piano.’ (27MW)
 b. ?Ik componeer op piano
 I compose on piano
 ‘I compose on piano.’

When the verb *componeren* ‘compose’ is combined with the preposition *op* ‘on’, the musical instrument construction cannot be bare, since the instrument itself (i.e. the physical object) has to be physically present. When the same verb combines with the preposition *voor* ‘for’, however, the musical instrument noun can be bare:

- (ii) a. Ik componeer voor de piano
 I compose for the piano
 ‘I compose for the piano.’ (27MW)
 b. Ik componeer voor piano
 I compose for piano
 ‘I compose for piano.’ (27MW)

A lexical framework alone is not enough to explain this contrast. A referential framework, however, can explain the contrast between (i) and (ii): while in (i), one specific piano is involved, (ii) gives a statement about pianos in general: it is a generic statement.

Musical instrument nouns are not the only nouns that have an agentive relation in their RELATIONAL PROPERTIES: two other classes of nouns that share this relation, are sport nouns and game nouns. The advantage of our lexical structure over Pustejovsky’s framework is that our framework can be easily extended to other nouns. This subsection will show parallels between musical instrument nouns and sport and game nouns, and how the lexical structure for musical instrument nouns can be modified slightly to be applicable to these classes of nouns.

Nouns that are sports and games have a lot in common with musical instrument nouns. A first observation is that, like musical instrument nouns (61a), sport nouns (61b) and game nouns (61c) can be bare when used with the verb *spelen* ‘play’.

- (61) a. Ik speel piano
 I play piano
 ‘I play piano.’ (CGN)
- b. Ik speel voetbal
 I play football
 ‘I play football.’ (27MW)
- c. Ik speel monopoly
 I play monopoly
 ‘I play monopoly.’ (27MW)

We claim that the lexical structure of these sport and game nouns is similar to that of musical instrument nouns. While the ARGUMENT STRUCTURE differs for these classes, they all share the agentive relation, which allows them to occur bare. Below, I give the modified lexical structure for *voetbal* ‘football’ and *monopoly* ‘monopoly’. Note that the RELATIONAL PROPERTIES are identical to that of musical instrument nouns.

$$\left[\begin{array}{l} \mathbf{voetbal} \\ \text{ARGSTR} = \left[\text{ARG}_1 = x : \textit{physical object} \right] \\ \text{EVENTSTR} = \left[\text{E}_1 = e_1 : \textit{sport (= game)} \right] \\ \text{RELATIONAL PROPERTIES} = \left[\begin{array}{l} \textit{Dotted object} = x \cdot y \\ R(x, y) = \textit{agentive} \end{array} \right] \end{array} \right]$$

$$\left[\begin{array}{l} \mathbf{monopoly} \\ \text{ARGSTR} = \left[\text{ARG}_1 = x : \textit{physical object} \right] \\ \text{EVENTSTR} = \left[\text{E}_1 = e_1 : \textit{game} \right] \\ \text{RELATIONAL PROPERTIES} = \left[\begin{array}{l} \textit{Dotted object} = x \cdot y \\ R(x, y) = \textit{agentive} \end{array} \right] \end{array} \right]$$

In Dutch, *voetbal* ‘football’ denotes both the ball as a physical object, as well as the game. The same holds for game nouns: they denote both the action of playing, as well as the physical object (consisting of the board and all additional parts). The major difference with musical instrument nouns is that where musical instrument nouns have a second argument, *music*, sport and game nouns have an EVENT STRUCTURE instead of a second argument. The agentive relation of sport and game nouns is similar to that of musical instrument nouns. For musical instruments, the physical object is needed to produce the music, which comes about through the agentive relation. Similarly, for sport and game nouns, the physical object is needed to make playing the game possible.

Sport and game nouns in non-bare constructions usually refer to the physical object, as (62) demonstrates.

- (62) a. Waar ligt de voetbal?
Where lies the football?
‘Where is the football?’
b. Pak jij het monopoly?
Grab you the monopoly?
‘Can you get the monopoly?’

Sport and game nouns can be bare in the same constructions that musical instrument nouns can be, as (63) shows. In these bare cases, just like for musical instrument nouns, the sport and game nouns refer to the agentive relation.

- (63) a. Ze heeft gevoel voor het theatrale aspect van voetbal
She has feeling for the theatrical aspect of football
‘She has a sense of the theatrical aspect of football.’
b. Ze studeert aan de spellenacademie met monopoly als hoofdvak
She studies at the games-academy with monopoly as major
‘She studies at the game academy with monopoly as her major.’

However, sport and game nouns have taken agentive relation a step further than musical instrument nouns: sport and game nouns have taken over the role of the verb in such a way, that they completely function as verbs themselves. This is shown in (64).

- (64) a. Wij gaan voetballen
We go footballing
‘We are going to play football.’ (27MW)
b. Hij leerde monopolyen van zijn ouders toen hij elf was
He learned monopolizing from his parents when he eleven was
‘He learned to play monopoly from his parents when he was eleven.’ (27MW)

As the ungrammaticality of the examples in (65) shows, this transition has not taken place for musical instrument nouns: a musical instrument noun cannot be used as a verb.

- (65) a. *Wij gaan pianoen
 We go pianoing
 ‘We are going to play piano.’
 b. *Wij gaan violen
 We go violining
 ‘We are going to play violin.’

Musical instrument nouns cannot function as verbs, perhaps because they do not have EVENT STRUCTURE. Sport and game nouns do have EVENT STRUCTURE, so it could be that that is what is needed to let a noun function as a verb. However, there are some exceptional musical instrument nouns that can actually be used as verbs, listed in (66):

- (66) a. Fluiten
 Whistle
 ‘To whistle’
 b. Toeteren
 Toot
 ‘To toot’
 c. Trommelen
 Drumming
 ‘To drum’
 d. Drummen
 Drumming
 ‘To drum’

As far as we know, these four examples in (66) are the only musical instrument nouns that can function as verbs.²³ However, they are not really counterexamples. The Dutch *fluiten*, in (66a), does not mean ‘flute-playing’, it means ‘whistling’. The noun *fluit* does not just mean ‘flute’, it also means ‘whistle’, and the verb is derived from this second meaning. While *toeteren* ‘to toot’ in (66b) is a way to produce sound, a *toeter* ‘horn’ is not an actual instrument.²⁴ This noun is used mostly to refer to children’s toys and car horns. The verb *trommelen* ‘to drum’ in (66c) is not (just) used to describe drum-playing: this verb can be used to convey any action where something repeatedly hits a

²³It must be noted that, even though there is a new, lexicalized form for (66c-d), the noun can still be used in combination with the verb *spelen* ‘play’, as (i) shows, as is the case for sport and game nouns.

- (i) a. Ik speel drums
 I play drums
 ‘I play drums.’
 b. Ik speel trommel
 I play drum
 ‘I play drum.’
 c. Ik speel voetbal
 I play football
 ‘I play football.’

²⁴The Dutch musical instrument horn is *hoorn*.

surface to produce sound. *Trommelen* ‘to drum’ does not just happen on a drum, you can also *trommel* ‘drum’ on a table. Finally, the only verb that is possibly a counter example, is *drummen* ‘to drum’ in (66d). This verb is most likely derived from the noun *drums* ‘drums’, which is a loan word from English. Because it is a loan word, it could be an exceptional case.²⁵

The ‘agentivisation’ of sport and game nouns is present in all sports and games, and can even be applied to new (or previously unknown) nouns. If someone tells you they engage in a regular activity of playing the game *Dominion*, they can say (67a). Likewise, fictional sports like Quidditch can still function as a verb, as (67b) shows.

- (67) a. Wij Dominionen elke week
 We Dominioning every week
 ‘We play Dominion every week.’
 b. Om drie uur gaan we Zwerkballen
 At three o’clock go we Quidditching
 ‘At three o’clock, we play Quidditch.’

The most likely explanation for this difference between musical instrument nouns and sport and game nouns is that the latter have EVENT STRUCTURE in their lexical structure, something that musical instrument nouns do not have. Since sport and game nouns can already be used to describe an event, as (62) showed, the agentive relation can be used to take this event-denotation a step further.

We propose that all nouns that have an agentive reading as their RELATIONAL PROPERTIES will have a lexical structure like the one proposed for musical instrument nouns. Some classes of nouns, like sport and game nouns, are in a further stadium of lexicalizing the agentive relation than other classes, like musical instrument nouns. We leave further exploration of the parallels between musical instrument nouns and other classes of nouns for future reseach, and move on to the concluding part of this thesis.

²⁵It is not entirely clear to us whether the verb *drummen* ‘to drum’ itself is also a loan word from English.

7 Conclusion

While in many languages musical instrument nouns only occur with a determiner, in Dutch they can often be bare. Dutch musical instrument nouns can be bare not only in the presence of a verb, noun, or preposition, as in (68a-c), but also on their own, in subject position, as in (68d).

- (68) a. Ik speel piano
I play piano
'I play piano.' (CGN)
- b. Hij is docent blokfluit aan het conservatorium van Münster
He is teacher recorder at the conservatory of Münster
'He teaches recorder at the Conservatory of Münster.' (27MW)
- c. Een muziekstuk geschreven voor gitaar
A piece written for guitar
'A musical piece written for guitar.' (27MW)
- d. Saxofoon is op conservatoria vreselijk populair bij vrouwen
Saxophone is at conservatories terribly popular with women
'Saxophone is at conservatories terribly popular with women.' (27MW)

Another peculiarity of musical instrument nouns, is that even the non-bare forms are special, since they can denote other things than just the physical object. For one, they can denote the music being made by the instrument, as shown in (69a). Another special use of non-bare musical instrument constructions is that they can be used to refer to the musician. (69b) can be uttered in the context of a singer who usually brings both a violinist and a guitarist to accompany her voice.

- (69) a. Ze stonden te walsen op de viool van André Rieu
They stood to waltzing on the violin of André Rieu
'They were waltzing on the violin of André Rieu.' (27MW)
- b. De viool was niet meegekomen
The violin had not come-along
'The violin had not come along.' (27MW)

Some musical instrument constructions are obligatorily bare, as in (70a), where the non-bare form is ungrammatical. Other constructions are obligatorily non-bare, as in (70b), where the bare form is ungrammatical. Finally, there are constructions that are grammatical both when they are bare and when they are non-bare, as (70c) shows.

- (70) a. Ik speel (*de) piano
I play (the) piano
'I play the piano.' (CGN)
- b. Intussen begint *(de) piano te spelen
Meanwhile starts (the) piano to play
'Meanwhile, the piano starts to play.' (27MW)

- c. Catelijne heeft met (de) accordeon de eerste prijs gewonnen
 Catelijne has with (the) accordion the first prize won
 ‘Catelijne has won the first prize with the accordion.’ (27MW)

We set out to find an explanation for this patterning in determination of musical instrument nouns, looking at both referential and lexical semantics. Musical instrument nouns displayed different types of referring: regular reference, (71a), kind reference, (71b), and other generic references, of which (71c) is an example. Furthermore, musical instrument nouns are able to have a weak reference, as in (71d).

- (71)
- a. Misschien vindt president Clinton tijd om op *(de) saxofoon te spelen
 Maybe finds president Clinton time to on (the) saxophone to play
 die hij in Polen heeft gekregen
 that he in Poland has received
 ‘Maybe president Clinton will find time to play on the saxophone that he received in Poland.’ (27MW)
 - b. *(De) panfluit is een duizenden jaren oud blaasinstrument
 (The) panpipe is a thousands years old wind-instrument
 ‘The panpipe is a millennia-old wind instrument.’ (27MW)
 - c. Ook in muziek uit Afrika kom je (de) accordeon tegen
 Also in music from Africa come you (the) accordion against
 ‘One also encounters the accordion in music from Africa.’ (27MW)
 - d. Ze werden op (de) piano begeleid door Brian
 They were on (the) piano accompanied by Brian
 ‘They were accompanied on the piano by Brian.’ (27MW)

As indicated in the examples above, regular definites and kind-denoting definites cannot be bare: the bare counterparts of (71a-b) are ungrammatical. Weak nominals can be bare, as (71d) shows. While most nouns cannot be bare under any generic reading, (71c) suggests that musical instrument nouns can be. The analysis by Aguilar-Guevara and Zwarts (2010) circumvents this problem: they analyse weak nominals as kind-individuals, which puts (71c) and (71d) in the same referential category.

We looked at how the lexical framework from Pustejovsky (1995) could account for the determination of musical instrument nouns. His framework showed that bare musical instrument nouns refer to the QUALIA STRUCTURE, whereas definite musical instrument nouns refer to either the QUALIA STRUCTURE or the ARGUMENT STRUCTURE. A problem with Pustejovsky’s framework is the lexically specific QUALIA STRUCTURE. Because the qualia are tied to specific lexical items, it cannot properly account for all musical instrument constructions, including metonymic uses. We proposed a lexical structure for musical instrument nouns that is built on Pustejovsky’s framework. Our framework, however, does not have specific lexical items encoded in the lexical structure. Not only can our framework account for all the data that Pustejovsky’s framework could account for, it also handles metonymic examples well. Furthermore, our framework leaves enough space to be easily extended to non-musical instrument nouns.

The structure we proposed for musical instrument nouns is repeated below.

$$\left[\begin{array}{c} \mathbf{saxophone} \\ \text{ARGSTR} = \left[\begin{array}{l} \text{ARG}_1 = x : \textit{physical object} \\ \text{ARG}_2 = y : \textit{music} \end{array} \right] \\ \text{RELATIONAL PROPERTIES} = \left[\begin{array}{l} \textit{Dotted object} = x \cdot y \\ R(x, y) = \textit{agentive} \end{array} \right] \end{array} \right]$$

The lexically specific ARGUMENT STRUCTURE is kept identical to that of Pustejovsky’s framework. The QUALIA STRUCTURE, however, is replaced by the more general RELATIONAL PROPERTIES, that involve the relation between the two arguments. For musical instrument nouns, the relation between the two arguments is an agentive one: the physical object is needed to produce the music. Our framework can account for all the data that Pustejovsky’s framework could: contexts that cannot be bare denote the ARGUMENT STRUCTURE, be it the physical object, as in (72a), or the music, as in (72b). Contexts that are obligatorily bare denote the agentive reading of the RELATIONAL PROPERTIES. The agentive reading can be made explicit, for example by the verb, as in (72c), but do not have to be, as in (72d).

- (72) a. Misschien vindt president Clinton tijd om op de saxofoon te spelen
 Maybe finds president Clinton time to on the saxophone to play
 die hij in Polen heeft gekregen
 that he in Poland has received
 ‘Maybe president Clinton will find time to play on the saxophone that he received in Poland.’ (27MW)
- b. Ze stonden te walsen op de viool van André Rieu
 They stood to waltzing on the violin of André Rieu
 ‘They were waltzing on the violin of André Rieu.’ (27MW)
- c. Ik speel piano
 I play piano
 ‘I play piano.’ (CGN)
- d. Catelijne heeft met accordeon de eerste prijs gewonnen
 Catelijne has with accordion the first prize won
 ‘Catelijne has won the first prize with accordion.’ (27MW)

Thirdly, musical instrument constructions that can be both bare and non-bare can denote either the music, as in (73a-b), or the agentive reading, as in (73c-d).

- (73) a. Ook in muziek uit Afrika kom je de accordeon tegen
 Also in music from Africa come you the accordion against
 ‘One also encounters the accordion in music from Africa.’ (27MW)
- b. Ook in muziek uit Afrika kom je accordeon tegen
 Also in music from Africa come you accordion against

- ‘One also encounters accordion in music from Africa.’
- c. Als pianist is hij minder vertrouwd met de viool
As pianist is he less familiar with the violin
‘As a pianist he is less familiar with the violin.’ (27MW)
 - d. Als pianist is hij minder vertrouwd met viool
As pianist is he less familiar with violin
‘As a pianist he is less familiar with violin.’

Finally, our framework can account for the examples that Pustejovsky’s framework could not account for. By keeping the agentive reading of the RELATIONAL PROPERTIES unspecified, instead of lexically restricting them to specific lexical items, our framework can account for an example like (74a): the agentive relation covers the relation that involves teaching someone to produce music using a musical instrument. A similar story holds for (74b): it is unclear what *harp* exactly refers to. What is clear, is that it refers to the agentive relation. Since the agentive relation is not linked to specific lexical items, it allows for a certain amount of ambiguity. Furthermore, our framework can account for metonymic examples like (74c), again in the context of a singer who usually brings both a guitarist and a violinist. The musical instrument noun here denotes the violinist: the agentive relation is used to indicate the agent.

- (74) a. Hij is docent blokfluit aan het conservatorium van Münster
He is teacher recorder at the conservatory of Münster
‘He teaches recorder at the Conservatory of Münster.’ (27MW)
- b. Ze heeft gevoel voor het theatrale aspect van harp
She has feeling for the theatrical aspect of harp
‘She has a sense of the theatrical aspect of harp.’ (27MW)
- c. De viool was niet meegekomen
The violin had not come-along
‘The violin had not come along.’ (27MW)

Our framework explained which musical instrument constructions are obligatorily bare, which constructions are obligatorily non-bare, and which constructions can be both bare and non-bare. What we could not explain was why some musical instrument constructions, while denoting the agentive reading, were obligatorily bare, while others also allowed a non-bare form. We therefore cannot rule out that there is still a certain amount of lexical specification involved in the determination of musical instrument nouns.

We finish with the observation that the lexical structure for musical instrument nouns can be extended to other nouns that display RELATIONAL PROPERTIES, and more specifically, nouns that also have an agentive reading as their RELATIONAL PROPERTIES. Two other classes that have this agentive reading are sport and game nouns. These two classes of nouns share similarities with musical instrument nouns, that other nouns do not: they can be bare in contexts where most other nouns cannot. Sport and game nouns differed from musical instrument nouns in that they have taken the agentive reading a step further: they can completely function as verbs, as shown in (75a-b). This

is something that is not possible for (almost all) musical instrument nouns: most musical instrument nouns that function as a verb, as shown in example (75c), are ungrammatical.

- (75) a. Wij gaan voetballen
We go footballing
'We are going to play football.'
- b. Wij gaan monopolieren
We go monopolizing
'We are going to play monopoly.'
- c. *Wij gaan pianoen
We go pianoing
'We are going to play piano.'

We speculated that this mismatch between sport and game nouns on the one hand, and musical instrument nouns on the other, was due to the fact that musical instruments do not have an EVENT STRUCTURE encoded in their lexical structure, while sport and game nouns do. A bare sport or game noun can already describe an event without needing the agentive reading of the RELATIONAL PROPERTIES, so it is possible that in contexts where the agentive reading is applicable, the event-denotation is taken a step further. We leave further exploration of the parallels between musical instrument nouns and other classes of nouns for future research.

A Examples from the corpora

This appendix lists for all the examples that are marked with (27MW) or (CGN) the literal sentence(s) we took from the corpora. We modified some examples to get shorter, yet natural-sounding sentences. From all examples taken from the spoken corpus, we removed cues like ‘uh’. The spoken corpus did not always give the complete context for any given musical instrument noun: the ‘complete’ examples here can therefore still be partial sentences.

- (1) Het orgel staat achter een smeedijzeren hekje en wordt groen, geel en blauwpaars aangelicht. (27MW)
- (2) maar goed hij speelt dan wel piano en hij speelt ook uh sopraansax ja. (CGN)
- (3) Hij is docent blokfluit aan het conservatorium van Münster. (27MW)
- (4) En de klank van de fluit is onderzoekend, lyrisch en soms capricieus. (27MW)
- (5) De tweede prijs voor viool werd gedeeld de Anastasia Tsjebotarjov (GOS) en Jennifer Cox (VS). (27MW)
- (6) Catelijne Smit uit Rotterdam met piano en Jeroen Gulikers uit Apeldoorn met accordeon hebben op het Prinses Christina Concours in Den Haag de eerste prijs gewonnen in de categorie vijftien jaar en ouder. (27MW)
- (7) De panfluit is een duizenden jaren oud blaasinstrument. (27MW)
- (8) Onder de zangers bevonden zich Henk Smit, Harry Peeters, Lena Kiilunen, Ellen van Haaren, Jan Derksen en Marco Bakker en ze werden op de piano begeleid door Brian Fieldhouse, assistent-koordirigent bij de Nederlandse Opera. (27MW)
- (9) en toen uh was ik ook bezig uh met uh ’t spelen in bands uh inmiddels op piano of uh synthesizer en ondertussen bleef ik natuurlijk uh klassiek gitaar oefenen. (CGN)
- (10) maar ze zal wel weer willen oefenen op haar gitaar. (CGN)
- (11) Als onderduiker had hij viool gestudeerd; de trompet was in die tijd te ludruchtig. (27MW)
- (12) Die b betekent dat het werk oorspronkelijk werd geschreven voor klarinet, het spelen van ’tweedehands’ muziek behoort tot de voortdurende frustratie van veel klassieke-saxofonisten. (27MW)
- (13) Saxofoon is op muziekscholen en conservatoria vreselijk populair bij vrouwen. (27MW)
- (14) Ik heb conservatorium gedaan, met klarinet als hoofdvak en piano als bijvak. (27MW)
- (15) Zij studeert cello en is erg verlegen. (27MW)
- (16) In de Parijse café’s ontstond in de vorige eeuw de Franse musette, je hebt de Zydeco en Cajun uit Louisiana en ook in sommige fusion-muziek uit Afrika kom

- je het accordeon weer tegen. (27MW)
- (17) Hoewel het me veel tijd kost - ik componeer op de piano en daarna moet de muziek stap voor stap georkestreerd worden - merk ik inderdaad dat het sneller gaat dan het schrijven van liedjes. (27MW)
 - (18) Op haar huidige tournee heeft Germano geen band bij zich. Alleen een bassist ondersteunt nu haar gitaarspel. De viool was niet meegekomen en het duo zat, heel ingetogen, op stoelen, waarvandaan Lisa Germano dan soms nog even de piano beroerde. (27MW)
 - (19) De sfeer, de stemming en een paar stonden nog te walsen op de viool van André Rieu. (27MW)
 - (20) Hij komt naast me zitten, we leggen de tekst op schoot, en intussen begint de piano te spelen - rollende, stormachtige klankenreeksen die nooit goed aflopen. (27MW)
 - (21) Dan hoort men de uitroep van een spelend kind, die door Reijseger bliksemsnel op de cello wordt nagespeeld. (27MW)
 - (22) Trompettist Jonathan Impett bespeelt zijn instrument met hetzelfde gemak als Arno Bornkamp de saxofoon. (27MW)
 - (23) Dat zal wel samenhangen met het feit dat hij zelf dit instrument bespeelt. (27MW)
 - (24) De piano, die hij zo karakteristiek harkerig bespeelt, raakte hij vrijwel niet aan. (27MW)
 - (25) Voor het Germaanse taalgebied heeft hij de dijenkletser Rosamunde ingestudeerd op de accordeon. (27MW)
 - (26) Zodra hij echter aan de piano zit valt elk spoor van ongemak van hem af en is hij alleen nog maar zichtbaar geworden concentratie. (27MW)
 - (27) Carlo werd door de jury omschreven als 'een wonder achter de drums'. (27MW)
 - (28) Dirigent Andri Previn prikkelt Shaham in deze suite vanachter de piano ook tot wat meer muzikale losbandigheid. (27MW)
 - (29) Dat ook op een altviool het summum aan subtiliteit kan worden bereikt bewees Zimmermann met Liebesleid en Schön Rosmarin, twee eigenlijk voor de viool gecomponeerde 'encore pieces' van Fritz Kreisler, die ze vederlicht en met een onweerstaanbare charme bij wijze van toegift speelde. (27MW)
 - (30) Telkens klinkt als muzikale onderbreking het walsje dat Du Perrons moeder op de piano speelde, op de wat haperende manier uitgevoerd zoals zij dat ongetwijfeld deed. (27MW)
 - (31) De statige man speelt het Ave Maria op zijn dwarsfluit. (27MW)
 - (32) Als ik twee tonen op de piano speel, hoor ik soms een compleet lied in mijn hoofd. (27MW)

- (33) en hij was alleen en 't was dus akoestisch met een gitaar alleen. (CGN)
- (34) ja op zich ben ik best wel tevreden met mijn akoestische gitaar. (CGN)
- (35) Er wordt meer akoestisch piano gespeeld, de arrangementen zitten minder dicht, er is nu ruimte voor flinke solo's. (27MW)
- (36) op de HAVO uhm werd mijn interesse gewekt door klassieke muziek en uhm ben ik uhm overgestapt op uh klassiek gitaar en dat was dan ook wel in en populair om klassiek gitaar te spelen. (CGN)
- (37) Maar daarna, zo hopen velen, vindt president Clinton misschien tijd om op de saxofoon te spelen die hij in Polen heeft gekregen. (27MW)
- (38) Het klavecimbel wordt sindsdien gemakshalve gezien als een primitieve voorloper van de moderne piano. (27MW)
- (39) En voor die emoties is de viool heel geschikt. (27MW)
- (40) Als pianist is Ligeti minder vertrouwd met de viool, vandaar dat het Vioolconcert hem te veel afweek van wat hij voor ogen had. (27MW)
- (41) Daar ben ik al mijn leraren nu nog extreem dankbaar voor, want de piano betekent alles voor me. (27MW)
- (42) Ik heb een ongewone benadering van de piano, want ik heb me er nooit voor geïnteresseerd om iets van pianisten te leren. (27MW)
- (43) Granitique van klarinettist Eckard Koltermann bestaat grofweg uit twee delen: een showcase voor trombonist Chris Abelen, jazzy en stevig, plus een onplaatsbaar subtiel en kleurrijk kwintet met de piano van Jeroen van Vliet als door-dringendste stem. (27MW)
- (44) Met een feilloos gevoel voor het visuele en theatrale aspect van harp met harpiste toonde zij zich 'salon-fähig' in het solo gedeelte van haar concert. (27MW)
- (45) De panfluit moet en zal op het conservatorium blijven. (27MW)
- (46) Ze spelen voetbal tussen het puin. (27MW)
- (47) We speelden ook Monopoly, met de kinderen van de burens, uren achtereen in een verduisterde kamer en grote bedragen speelgeld verliezend (...) (27MW)
- (48) Echt bridge spelen wilde hij best wel. (27MW)
- (49) Op een middag wilde hij met een paar vriendjes gaan voetballen, maar het regende zo hard dat ze onderweg in een snookerhal gingen schuilen. (27MW)
- (50) Hij leerde bridgen van zijn ouders toen hij elf was. (27MW)

References

- Ackema, P. and A. Neeleman (2004). *Beyond morphology: interface conditions on word formation*. Oxford University Press, USA.
- Aguilar-Guevara, A. and J. Zwarts (2010). Weak definites and reference to kinds. In N. Li and D. Lutz (Eds.), *Semantics and Linguistic Theory (SALT) 20*, Ithaca, NY, pp. 179–196. CLC Publications.
- Asudeh, A. and L. Mikkelsen (2000). Incorporation in Danish: Implications for interfaces. *Grammatical interfaces in HPSG*, 1–15.
- Booij, G. (2009). A constructional analysis of quasi-incorporation in Dutch. (*Gengo Kenkyu*) 135, 5–27.
- Borthen, K. (2003). *Norwegian bare singulars*. Ph. D. thesis, Norwegian University of Science and Technology.
- Carlson, G. (2006). The meaningful bounds of incorporation. In S. Vogeleer and L. Tasmowski (Eds.), *Non-definiteness and plurality*, pp. 35–50. John Benjamins Publishing Co.
- Carlson, G. (2009). Generics and concepts. *Kinds, things, and stuff: mass terms and generics*, 15.
- Carlson, G. and F. Pelletier (1995). *The generic book*. University of Chicago Press.
- Carlson, G. and R. Sussman (2005). Seemingly indefinite definites. *Linguistic evidence: Empirical, theoretical, and computational perspectives*, 26–30.
- Cruse, A. (2011). *Meaning in language: An introduction to semantics and pragmatics*. Oxford University Press, USA.
- Dayal, V. (2003). A semantics for pseudo-incorporation. *Ms., Rutgers University*.
- Dayal, V. (2004). Number marking and (in) definiteness in kind terms. *Linguistics and Philosophy* 27(4), 393–450.
- Farkas, D. and H. De Swart (2003). *The semantics of incorporation*. CSLI Publications.
- Farkas, D. and H. De Swart (2007). Article choice in plural generics. *Lingua* 117(9), 1657–1676.
- Instituut voor Nederlandse Lexicologie (1996). *27 Miljoen Woorden Krantencorpus 1995 gebruikershandleiding*. Instituut voor Nederlandse Lexicologie.
- Katz, G. and R. Zamparelli (2005). Genericity in Natural Language. *Lecture notes: European Summer School in Language, Logic and Information, Edinburgh*.
- Krifka, M., F. Pelletier, G. Carlson, A. Ter Meulen, G. Chierchia, and G. Link (1995). Genericity: an introduction. *The generic book*, 1–124.
- Löbner, S. (1985). Definites. *Journal of Semantics* 4(4), 279–326.

- Massam, D. (2001). Pseudo noun incorporation in Niuean. *Natural Language & Linguistic Theory* 19(1), 153–197.
- Mithun, M. (1984). The evolution of noun incorporation. *Language* 60(4), 847–894.
- Pustejovsky, J. (1991). The generative lexicon. *Computational linguistics* 17(4), 409–441.
- Pustejovsky, J. (1995). *The generative lexicon*. MIT Press.
- Ross, H. (1995). Defective noun phrases. In *31st Regional Meeting of the Chicago Linguistics Society*, pp. 398–440.
- Stvan, L. (1998). *The semantics and pragmatics of bare singular noun phrases*. Ph. D. thesis, Northwestern University.
- Stvan, L. (2009). Semantic incorporation as an account for some bare singular count noun uses in English. *Lingua* 119(2), 314–333.
- van der Beek, L. (2005). *Topics in Corpus-Based Dutch Syntax*. Ph. D. thesis, University of Groningen.
- Weijers, E. (2004). *Een Verkenning van COREX: Introductie van het Exploitatieprogramma bij het Corpus Gesproken Nederlands*. Nederlandse Taalunie.