Talking Animals

A Translation of J.P. Davidson's *Planet Word*

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Introduction

Fry's Planet Word is a BBC television series presented by Stephen Fry and aired in September and October 2011. This documentary about language is directed by John-Paul Davidson who also wrote a book, *Planet Word*, to accompany the series. This thesis focuses on the translation problems that arise during the process of translating the book from English into Dutch and the strategies that can be used to handle these issues.

Planet Word is a work of non-fiction that covers many aspects of language use and history. It could function as a stepping stone for students of any (foreign) language because of its wittiness and accessible register. The individual chapters could be published separately in language journals or magazines with sections on science or languages. For this thesis I chose to translate the subchapter "Talking Animals" of the first chapter "Origins". The nature of the text is scientific, but it is also useful to people who do not have any preconceptions or prior knowledge of language as a science.

This chapter of the book provides the reader with case studies, theories, anecdotes and biological facts to answer questions that surround the subject of language differences between people and animals. I chose to translate this particular chapter for its diversity and its subject matter. I think that the question of why people can talk while animals cannot is intriguing and a Dutch translation would be valuable for people that are interested in this issue. As the book has not been translated into Dutch before, it will reach a new audience that will have the opportunity of learning about language. The author approaches the question from different angles and adds a humoristic undertone to a serious subject. He looks at it from a scientific perspective, but he also looks at fraud and the experiences people had when they were working with animals.

J.P. Davidson gives special thanks to Stephen Fry in the acknowledgements at the end of the book. He recognizes Fry as a major influence during the writing process. The fact that

Davidson has worked so closely with Fry echoes through in his work. Davidson is fairly unknown whereas Fry has gained international recognition with his work on television and in theatres. Even though he is not the author, readers will expect to find at least touches of his style and wit. I therefore translated the text with Fry's involvement and influence in the back of my mind. Davidson's style needs to be preserved, but Fry's reputation should be considered as well. This concept is scientifically interesting as it explores how a book is influenced by people other than the author.

The translation problems that occur in this text and the theories that offer ways of thinking about and solving these are described in a theoretical framework. I chose to focus on Christiane Nord's model for text analysis and used the works of several authors and experts, including Andrew Chesterman, Diederik Grit and Roman Jakobson, to further explore her observations.

This thesis consists of three parts. The theoretical framework and the bibliography form the first part, the annotated translation the second part and the third part consists of the source text (ST) in the form of an appendix.

Theoretical Framework

Many texts have been written about translation theory, text analysis and problem solving. For this thesis I chose Christiane Nord's model for text analysis as a guideline throughout the process of translating. This means that I used the four categories that she describes to identify different translation problems. Nord's first category consists of pragmatic problems. Problems that arise on this level include issues of time and place and any prior knowledge the reader has about the subject of the text. Culturally specific matters, such as currency or units of measurement occur in Nord's second category. The third category covers problems that occur because of the different structures between language and in the last category Nord distinguishes problems that are unique to the text itself. These range from the translation of proper nouns to puns and words that do not exist in the target language.

This theoretical framework is divided into several chapters. In the first chapter I will look at pragmatic issues. This includes a section containing an in-depth analysis of the humoristic elements of the text and the strategies and solutions that I used in my translation. I then continue by discussing cultural issues in the second chapter with a special focus on realia. In the third chapter I will focus on the linguistic properties of the text, by discussing grammatical and structural problems and in the last chapter I will examine text-specific problems with special attention to ambiguities and register.

1. Translating Pragmatic Problems

On the pragmatic level, I looked at time, place and prior knowledge the reader may or may not have. Place does not appear to be an issue. The text is written in England by an English author, but this should not inhibit the reader's understanding of the translation. Time could be an issue for older readers, but the translation is not aimed at them. As terms of

modern technology, social media and internet phenomena are mentioned, it is possible that not all people above a certain age would understand what the author means.

Prior knowledge – or the lack of it – provides more serious issues. As I mentioned in the introduction, Stephen Fry's cooperation could influence the reading experience. It is likely that Dutch readers are mainly familiar with his work in comedy and that they will expect to find hints of his style and humour in this text even though he did not write the book. Translating humour therefore proves to be a pragmatic issue in this text. British readers will also be influenced by their knowledge about Fry, but as it is likely that they are more familiar with his work outside of comedy, his political affiliations, religious views and personality than the target audience, the influence on their reading experience will be of a different nature.

1.1 Translating Humour

Stephen Fry's sense of humour is one of his most well known features and some of that is also visible in this text. Issues naturally arise as a result of this. Humour or humoristic remarks are often visible, but can be hidden as well. Especially the not so obvious jokes can be problematic.

First of all, hidden or subtle jokes need to be discovered and then translated just as delicately as the author has written them. Humoristic elements are often complex. Delia Chiaro describes in "Translation and Humour, Humour and Translation" how "humour generating devices" (1) can consist of many smaller units and that it is "the combination of such linguistic and culture-specific features that creates one of the most arduous challenges not only for professional translators [...], but also for anyone who has tried to tell a joke or be funny in a language other than their own" (1). The subtlety or finesse that the author of the ST has used to convey humour is a delicate task and can be problematic for a translator. Chiaro's

theory was helpful here as her explanation of how humour works was useful to me in understanding its complexity.

Graeme Ritchie distinguishes between referential and verbal humour, of which the latter is mainly present in *Planet Word*. Verbal humour, according to Ritchie "relies on the particular language used to express it, so that it may use idiosyncratic features of the language (such as which words sound alike, or which sentence structures are ambiguous" (34). In one of the first sentences of the ST for this thesis, Davidson invites the reader to take a look at "our closest relatives, our primate cousins, the gorillas" (25). This sentence does not appear to be funny after a first glance, but humour is definitely present. For example, the sentence can be read as an announcement that circus director would make when he wants to introduce his gorillas. The fact that these same gorillas are declared to be our closest relatives, cousins to be exact, makes it sound as if we are apes ourselves. In my translation I kept as close to the ST as possible as adequacy is more important here than acceptability.

Other examples of verbal humour include contrasts that are created by the author. Near the beginning of the text, Davidson introduces gorilla Ambam. The reader is first presented with a romantic image: "Gazing into his eyes, you see intelligence, and emotions" (Davidson, 25). However, it does not take long before this image is shattered. The author continuous with his observation that Ambam may appear to be intelligent, but that in fact his communication skills are limited.

An example of a similar contrast is "Project Pigeon" (Davidson, 29). Here, a promising project is declared a failure in one mocking sentence. This type of humour is described by Ritchie as an "[...] amusing text in which the sole function of the language is to convey a description of a situation, or of some events, so that the humour is clearly referential [...]" (35). In the case of Ambam the gorilla and Project Pigeon, the mocking sentences are dependent on the praising lines that precede them. To preserve this humour I used several

strategies on a syntactic level as described by Andrew Chesterman. His strategies are relevant for this translation as they are functional and many of them could be applied to this specific ST. In the part concerning Ambam, I had to change the structure of the sentences, by changing the structure of the clauses (Chesterman, 157,158). Here, I added some words to delay the sentence which creates a mocking effect. I used Chesterman's semantic strategies (162) on other occasions, for example in the part that mentions Project Pigeon. Humour is there mainly created by the contrast between the image of a pecking pigeon and advanced technology and I was able to achieve the same effect by shaping that same contrast through my choice of words.

Humour is an important feature of this text and is presented in different ways. By using several strategies it is possible to preserve most of the humour, but it is still difficult to create the same effect on every occasion. Chiaro and Ritchie provide interesting theories on this subject that were helpful during both the analysis of the ST and the writing process of the translation.

2. Translating Cultural Elements

Culture is a subject that follows naturally from the previous chapter. Cultural aspects that are unknown to the target audience proved to be problematic in my translation. Harald Martin Olk observes that "[...]translators who seek to create target texts which will be accepted in the target culture need to identify culture specificity in the source text and to find a communicatively satisfactory mediating position for cultural divergences" (121). On a cultural level, with regards to Olk's observation, I have used solutions that do not undermine what is written in the ST, but that are also acceptable in the TT. Again, I chose adequacy over acceptability as I did in the translation of the humoristic aspect of the text as well. I paid extra attention to realia which will be discussed in the following paragraph.

2.1 Translating Realia

Diederik Grit mentions the importance of looking at the type of text, the target audience and the goal of the text itself (190, 191). *Planet Word* is a work of non-fiction for people who are interested in language and the goal of the text is to inform those people. Bearing this in mind I chose to translate realia adequately.

The author refers to several institutions, such as Aspinall's and the Kewalo Basin Marine Mammal Laboratory. I chose to conserve the English terminology here as these institutions operate under their formal name. If the target audience would like to know more about them, they will find more information when they search for the English names. On some occasions I did choose to use Dutch. Examples of this are 'Project Pigeon' and 'the Clever Hans Effect'. As there are existent Dutch translations already, I think using those is justified.

The references to internet- and television phenomena provided some issues as well. The author asks the readers to look up YouTube clips by entering the search query 'talking animals'. I could have chosen to translate the query into the Dutch equivalent, but I decided not to do this. Video websites such as YouTube are still dominantly English so it is likely that the readers will be able to find more material when they enter the English query. Another issue with regards to culture and media arose when the author mentions a recent episode of the Oprah Winfrey Show. The problem here is 'recent' as Oprah Winfrey quit making and presenting the show in 2011. In this case I decided to change the reference to when the show was broadcast to a more general unity of time. In this way, the focus shifts more to the content of the episode instead of a specific time in the source culture (SC).

During the translation process I constantly kept the SC in mind. Even though some of the cultural aspects might be known by the target audience and could be left without further explanation, some serious problems presented themselves as well. I used a combination of

adequate and acceptable solutions and tried to provide the readers with knowledge that could help them understand the cultural aspects of the text.

3. Translating Linguistic Properties

Like culture, language has its own unique elements that can be problematic in a translation. In the ST these mainly presented themselves in the different verb tenses. Roman Jakobson explains that: "Languages differ essentially in what they must convey and not in what they may convey. Each verb of a given language imperatively raises a set of specific yes-or no questions, as for instance: is the narrated event conceived with or without reference to its completion?" (116). This question is relevant here as I had to ask it as well during the translation of tenses. The present continuous is often used in which case I opted for a Dutch equivalent in which the action itself is foregrounded. In this way Jakobson's question could be answered without making matters too complicated.

Sentence length and punctuation were a recurring problem. Some complex sentences had to be altered so that they are not confusing to the target audience. I mainly did this by adding, deleting or changing punctuation as this is the least invasive. It is also aesthetically more appealing to the reader. Some sentences in the ST started with conjunctions or did not follow logically from the preceding one. Even though the changed I made may seem insignificant, I believe they improve the readability of the translation.

The last issue on a linguistic level I want to discuss is the use of pragmatic particles. When the author asks the reader to do something, it is often needed to add a particle so that it sounds more natural. This also has to do with the tone of the text. The author is amiable towards the reader, which means that the register I use in the translation needs to convey the same friendliness. Without adding particles a task that is supposed to be stimulating or

entertaining can sound like an order. This is also why I decided to translate 'you' with *jij*, *je* or *jou* instead of using *u*.

The linguistic properties of the ST could not always be translated by using the same strategies, which resulted in additional problems. The clash between formal and informal language that can be related to science versus humour, will therefore be discussed further in the subchapter on register as this proved to be a recurring issue.

4. Translating Specific Elements

I encountered most translation problems on a text-specific level. To solve these I often used Chesterman's syntactic and semantic strategies (154-167). Among the different subcategories of his semantic strategies are synonyms, hyponyms and paraphrases. For example, I used a hypernym for 'primate' as it is more suitable and does not drastically change meaning. On some occasions I had to use synonyms to avoid repetition. An example of this is the recurring word in the text 'argue'. Here, I tried to use different translations such as *bepleiten* and *betogen*.

Two other examples of issues on this level are the so-called "man/dolphin communicator" and the "transphonometer" (Davidson, 30). The strategy I used here is what Chesterman defines as a "*literal translation*" (155). My translation for 'man/dolphin communicator' is *mens/dolfijn communicatiemiddel*. By doing this I kept close to the source text without losing sense or grammaticality. I used the same strategy for 'transphonometer' which I translated into *transfonometer*. In this case I was unable to find any information outside of the source text and no official Dutch translation or common appellation. The literal translation is still grammatical and makes as much sense as the word that is used by the author.

Apart from these more general text-specific elements, I chose to look at two larger fields: ambiguities and register. I will analyse and discuss these in the following two paragraphs.

4.1 Translating Ambiguities

Natasha Tokowicz and Tamar Degani explore the translation of ambiguities with this simple definition as a starting point: "Translating ambiguity occurs when a word in one language can be translated in more than one way into another language" (281). In their study, they mainly look at ambiguities on a lexical level and give the following example: "[...] the lexically ambiguous word 'calf' has two translations into Dutch, *kalf* and *kuit*, each of which refers to one of the meanings of calf" (283). I came across this type of ambiguity in my translation as well and I will therefore discuss some examples.

The first ambiguity surfaces right at the beginning of the text, the title to be precise. "Talking Animals" can have two different meanings: animals that talk and talking about animals. I was able to preserve this ambiguity by using *Dierenpraat* as a translation. By doing this I also wanted to show that ambiguities do not always need to be problematic. Because of the nature of the text, I believe that the author deliberately chose to use an ambiguous title. Its exact meaning is not clarified so I decided to maintain this ambiguity.

On other occasions ambiguities did prove to be problematic, the word 'spell' for example. Davidson writes about Toby the Sapient Pig who "would 'spell and read [...]'" (26). The Oxford English Dictionary (OED) gives multiple meanings, including "To read (a book, etc.) letter by letter; to peruse, or make out, slowly or with difficulty" and "To make out, understand, decipher, or comprehend, by study […]" ("Spell"). So, here I had to choose the option that would fit best within the context of the word. As the author already mentioned

'read', I decided to translate 'spell' into *spellen*. Reading follows logically form spelling in the sense of naming letters one at the time, so I believe this is this best option in this case.

The last ambiguity I would like to discuss is the word 'mansion'. The OED suggest multiple meanings here as well, such as "A large residential building divided into flats" and "A place in which a person, etc., lives or lodges; a place of abode, a dwelling place" ("Mansion"). The word occurs in the ST in the following sentence: "He was moved to a mansion owned by the university and was cared for by a series of handlers" (Davidson, 33). The fact that the mansion is owned by a university could mean that it was used to lodge students, but it could also have been an office building. I decided to use the hypernym *gebouw* because of this lack of clarity. It is not essential to the information what kind of mansion it was, so I chose the safest option.

4.2 Translating Register

The register of the ST is not consistent. There appears to be an interaction between an informal register and a more scientific register. This influences the reading experience, but I also had to keep it mind during the process of translation. In this paragraph I will discuss the issues that arise because of these different registers.

Mostly, the register is rather informal which manifests itself in words such as 'like' and 'just', but this changes at a certain point in the text. This happens under the header 'What do Dolphins Talk About'. The author discusses some serious scientific experiments involving dolphins, which leads him to use a more scientific register. The higher register is visible throughout this part of the text and I tried to apply this to the target text as well. I chose for example to use *klaarblijkelijk* instead of *blijkbaar*.

However, this was not the only problem I had to pay attention to in terms of register. Some words that are used by the author have certain connotations. Grit mentions the

importance of connotations and denotations and summons the translator to consider a possible change in clarity in a translation (191).

Davidson describes humans' "otherness from the rest of creation" (26). I believe that the obvious Dutch translation *schepping* has religious connotations and would therefore not fit in a more scientific text even though its meaning is still clear. On the other hand, it could also be that the author deliberately chose this word to shape a contrast similar to the ones I explored in the paragraph on humour. For this reason I considered using *schepping* anyway, but as the contrast is not as obvious in a Dutch translation as it is in English, I chose another option.

Register is always a key feature of a text and it is crucial to consider this in a translation. I tried to mimic the different registers that are used in the ST in my translation as I believe it enforces the uniqueness of the text.

Conclusion

The aim of this thesis was to find a way of dealing with translation problems and finding solutions for these issues by using different strategies that are described by several experts in the field of translation. By analysing the text via Christiane Nord's model and considering the different levels and categories I was able to properly structure both this theoretical framework and the translation itself.

In the first chapter on pragmatic problems I looked at issues that affected the entire text. I considered the knowledge of the reader and applied this in my translation. As I believe that Stephen Fry's involvement in the writing of the book has some serious impact, mainly on a comic level, I devoted a subchapter to translating humour. I believe it is important to preserve the humoristic elements for the target audience as they will expect to find humour in the text as a result of Fry's cooperation. The in-depth analysis on this subject provided me

with new insights, such as the influence of creating contrasts in a text, and was an effective way to investigate this issue.

The second chapter covered the cultural aspects of the text, specifically the translation of realia. My choices here were mainly based on Grit's theory and the consideration of the target audience. As I expected that the readers are not familiar with a substantial amount of the cultural references I clarified these. By adding geographical references or subtle explanations of unknown terms I could bring the reader closer to the text without interfering drastically. Grit's theory was of great importance during the translation process of these specific problems and not only did the theory provide me with ideas for solutions, it also helped me understand the importance of reflecting on cultural differences.

Chapter three covered the subject of linguistic issues including grammar and sentence structure. The decisions I made here were mainly based on comprehensibility. For example, I chose verb tenses that would fit best in the context. Improving the reader's comprehension also meant that I had to make some structural changes, such as putting short sentences together, or cutting up longer sentences. In some places, the structure or grammar of the ST was either confusing or incorrect. I changed this where possible in the TT by clarifying or altering grammatical structures as I believe it improves the readers' comprehension.

Lastly, I looked at text-specific elements. In this chapter I focused on ambiguity and register as both these subjects are important features of the text. I found ambiguity especially interesting to analyse and discuss as it is often hidden in the text and easy to miss. The register provided the most significant issues on this level as it sets the entire tone of the text and is therefore of key importance. Even though the list of text-specific problems is almost endless, I believe that the examples I used are a good representation of the issues I encountered during the translation process.

I was able to answer my research question by studying the different theories. For the translation of this particular text, several strategies proved to be useful. Grit's theory was especially valuable in translating realia whereas Chesterman's strategies were most functional in translating difficult structures. I discovered that humour is a defining characteristic of this text and I would like to suggest this as a topic for further research. I think it could be interesting to compare the humoristic elements of this text to those that are used by Stephen Fry in his own novels and possibly to the work of authors with similar writing styles.

I generally enjoyed writing this thesis and the research that surrounded it has provided me with new knowledge on the subject of translating and translation theory. Some choices were difficult to make while others hardly needed a second thought. The complexities and possibilities of language have always fascinated me and I hope to have contributed to the debate by writing this thesis.

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Translation of "Talking Animals" from *Planet Word* by J.P. Davidson pp. 25-35.

Dierenpraat[1]

Praten: waarom kunnen wij het wel, maar andere dieren niet? Laten we eens kijken naar onze

nauwste verwanten, onze dierlijke[2] neefjes en nichtjes, de gorilla's.

Ambam is een westelijke laaglandgorilla die wordt opgevangen in het Port Lympne

centrum van de Aspinall Stichting in Kent in Engeland[3]. Ambam werd een YouTube sensatie

nadat hij was gefilmd terwijl hij op twee poten liep. Het is uitzonderlijk om dit immense

wezen rechtop te zien staan terwijl hij in het rond kijkt, net als een mens. Als je in zijn ogen

staart zie je intelligentie en emoties. Gorilla's kunnen lachen en huilen, maar omdat ze niet

kunnen praten lijkt de communicatie daar dan ook wel op te houden.

Ten eerste beschikken ze simpelweg niet over de juiste vocale uitrusting. Om te

kunnen praten is een verlaagd strottenhoofd voor onze soort van essentieel belang[4]. Dit,

samen met gecontroleerd adem kunnen halen (apen kunnen hun adem niet inhouden) en de

zorgvuldig afgestelde spieren in de tong en lip, zorgt ervoor dat de lucht die we inademen

door de stembanden en in de mond word geperst, waar het met buitengewone subtiliteit verder

kan worden gevormd. Zeg maar eens 'hallo' tegen jezelf en kijk hoe je mond en tong

bewegen. Nou, er is geen andere aap die dit ook kan en wij hebben er, natuurlijk, ook de

hersenen voor. Maar waarom willen we zo graag met andere dieren praten?

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[1] D*ierenpraat* can mean several things just like 'Talking Animals.' 'Talking Animals' can mean animals that talk and talking about animals. *Dierenpraat* has these two meanings as well. This is why I chose that as a title instead of *pratende dieren* or something similar with just one meaning.

[2] I chose to translate 'primate' with the hypernym *dier* (animal) and turned this into the adjective *dierlijke*. I came to this decision as 'primate' does not have an adjective equivalent in Dutch. Translating it into something containing *aap* or *apen* would have resulted in an unnatural sentence. As humans can be seen as mammals as well, this was the best solution.

[3] I added *stichting* (foundation) to Aspinall as I expect that few Dutch readers will know what Aspinall's is. I added 'England' after 'Kent' for the same reason.

[4] This sentence had to be turned around to make it natural to read for Dutch readers, I could have kept 'larynx' as it is acceptable in Dutch as well, but as this text is not aimed at scientists or people with medical training I translated it into the more common *strottenhoofd*. I did not use *adamsappel* as that would be an oversimplification.

Misschien zijn we zo gefascineerd door het concept vanwege het feit dat we zo anders zijn dan de rest van wat er op aarde leeft[5]. Van talloze mythische verhalen uit stamculturen van over de hele wereld, van de slang in de Hof van Eden tot C.S. Lewis' *De Kronieken van Narnia*[6], van Rudyard Kiplings *Het Jungleboek* en Bugs Bunny tot Mr. Ed het pratende paard[7], Dr. Doolittle en Stuart Little de pratende muis, voeden boek- en filmfictie ons verlangen naar wezens die tegen ons kunnen praten. Dit verlangen om met de rest van wat op aarde leeft te communiceren heeft entertainers, wetenschappers, en oplichters allemaal in dezelfde mate beïnvloed.

Dieren met zogenaamd buitengewone communicatievaardigheden brengen al honderden jaren veel geld in het laatje. Signor Capelli's katten met gevoel voor muziek werden in 1829 aangekondigd als 'het grootste wonder in Engeland' en het schijnt dat Charles Dickens een van zijn andere acts, Munito de Wonderpoedel, die domino kon spelen, kleuren kon herkennen en kon tellen, aanschouwd heeft. Dickens schreef over de eerste keer dat hij de act zag en voor de gek gehouden werd door de hond die 'vragen beantwoordde, vertelde hoe laat, welke dag of datum het was, en elke genoemde kaart uit een waaier kaarten die op de grond lag kon pikken.

Toby het Geleerde Varken

'Toby het Geleerde Varken' werd voor het eerst aan het publiek in Londen voorgesteld rond 1817 als 'de grootste rariteit van vandaag de dag'. Volgens de aanplakborden kon Toby

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[5] I chose to use a description of 'creation' instead of a direct translation as *schepping* has religious connotations. This does not fit in with the rest of the, mainly scientific, character of the text.
[6] I chose to use the Dutch translation of the title of the book by C.S. Lewis so that there can be no confusion about who C.S. Lewis is and what the chronicles of Narnia are. This fits with the title *Jungle Book* that is mentioned next.
[7] I added *het pratende paard* (the talking horse) as especially younger Dutch readers will probably not know who Mr. Ed was. As later on 'the talking mouse' is added to Stuart Little by the author, I decided to add the same to Mr. Ed to clarify.

'spellen en lezen[8], kaarten, iedereen tot op de minuut nauwkeurig vertellen hoe laat het was

volgens hun eigen horloge [...] en wat nog verbazingwekkender is: hun gedachten lezen[9]'.

Het behoeft geen verdere uitleg dat de meeste van de acts gebaseerd waren op trucs in

plaats van op echte taalvaardigheid. Dickens bekeek Munito's optreden een tweede keer

nauwkeuriger en hij merkte deze keer op dat de hond de kaarten meer door hun geur koos dan

door hoe ze eruitzagen – de baas had ze met anijs ingesmeerd.

Vandaag de dag zijn we nog net zo nieuwsgierig naar de mogelijkheid dat pratende

dieren bestaan. Typ op de YouTube website maar eens 'talking animals[10]' in en je zult

bedolven worden onder een verbazingwekkend groot aantal videoclips van pratende dieren

zoals Odie de mopshond, die op commando al jankend overtuigend 'I love you' fluistert.

Maar in tegenstelling tot de trucjes en de imitaties en de verzinsels, zijn er ook serieuze

wetenschappelijke pogingen gedaan om te onderzoeken tot op welke hoogte dieren in staat

zijn om menselijke taal te leren en te begrijpen.

Dolfijnen, paarden, papegaaien en chimpansees zijn allemaal het onderwerp geweest

van wetenschappelijk onderzoek en debat. Bij Oprah Winfreys televisieshow in de VS is ooit

een interview met Kanzi, een bonobo aap, uitgezonden[11]. Kanzi staat bekend als 'de aap die

gesprekken met mensen voert'. De discussies hierover maken veel los. Linguïsten zoals Noam

Chomsky betogen dat taal uniek is voor mensen, van wie de hersenen geëvolueerd zijn met

speciale aanpassingen voor taal die geen ander dier heeft. Volgens Chomsky beschikken

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[8] I chose the literal translation here, because I feel it is most suitable. Another option was *lezen en schrijven*, but I think that spelling in the sense of naming letters one at the time is closer to reading than to writing. It is more likely that Toby would physically be able to spell (by making a noise or something similar) than he would be able to write.

[9] Here I replaced 'he will' with a colon to avoid an unnatural rhythm. I think the rhythm in English is not appealing either, but as the sentence is quite long and complicated as well I decided to make this change in the translation to avoid confusion.

[10] I chose to keep the English query here because YouTube is still mainly English. The reader will therefore get more hits and as the author promises 'an astonishing array' this is more suitable.

[11] I replaced 'recently' with *ooit* as Winfrey quit the show in 2011 and no episode is 'recent' anymore. I replaced 'chimp' with *aap* because bonobo chip is not the common Dutch name (this is bonobo), but it does clarifiy what a bonobo is.

mensen over een soort taal-gen dat hen in staat stelt om woorden betekenis te geven door grammatica te gebruiken. Anderen suggereren dat, als vroegere mensachtigen over de faciliteiten voor communicatie beschikten, deze aanpassingen misschien nog aanwezig zijn in de moderne aap. Toch bepleit een andere groep onderzoekers dat sommige intelligente dieren het vermogen hebben om een aantal van de fundamentele karakteristieken van menselijke taal te leren.

Het eerste verhaal over pratende dieren dat serieus wetenschappelijk onderzoek in werking zette was waarschijnlijk Hans het Tellende Paard. Zijn eigenaar, een eind negentiende-eeuwse Duitse wiskundeleraar, Wilhelm von Osten, geloofde dat dieren veel intelligenter waren dan mensen toe wilden geven. Von Osten besloot zijn theorie te bewijzen door een kat, een beer en een paard wiskunde te leren. De kat en de beer vonden het niet interessant, maar het paard, een Arabische hengst met de naam Hans, beloofde veel goeds. Als Von Osten met krijt een nummer op een schoolbord schreef tikte Hans met zijn hoef tot hij het juiste nummer had – een geschreven 4 resulteerde in vier tikken met de hoef. Vragen over optellen, aftrekken, breuken en spelling werden allemaal door Hans beantwoord door middel van het tikken met zijn hoef. Het verhaal van het slimme paard deed al gauw de ronde en Von Osten begon met het tentoonstellen van Hans bij gratis shows in heel Duitsland. Enorme menigten verzamelden zich om Hans vragen te zien beantwoorden die door zijn baas gesteld werden. 'Wat is de wortel van negen?' 'Als de vijfde dag van de maand op een maandag valt, wat is dan de datum op de eerstvolgende donderdag?' Hans werd gevraagd om woorden te spellen door middel van tikken – een tik voor A, twee tikken voor B, enzovoort. Zijn antwoorden waren bijna negentig procent van de keren correct.

Het Duitse schoolbestuur stelde een commissie van experts samen om dit geniale paard[12] te bestuderen en in 1940 maakte de Hans Commissie, die bestond uit twee zoölogen,

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[12] Here I did something similar to what I did with 'primate' as the adjective 'equine' does not have a Dutch equivalent. The meaning does not change and it makes more sense than *paarden-genie*.

een psycholoog en een circusdirecteur, bekend dat het geen tekenen van bedriegerij kon vinden en dat Hans' capaciteiten echt leken te zijn.

Het onderzoek werd overgedragen aan een psycholoog, Oskar Pfungst, die na zorgvuldige observaties tot een baanbrekende conclusie kwam. Hans de Hengst[13] gaf alleen het juiste antwoord als hij de vraagsteller kon zien en als de vraagsteller zelf het antwoord wist. Pfungst had Von Osten goed bekeken en het viel hem op dat als het aantal tikken die het paard maakte het juiste antwoord benaderden, Von Ostens lichaamshouding en gezichtsuitdrukkingen veranderden. Zijn uitdrukkingen werden steeds strenger en verzachtten weer zodra het paard de laatste, juiste tik produceerde. Deze verandering[14] was voor Hans het teken om te stoppen met het tikken van zijn hoef. Dus Hans de Hengst bleek niet zozeer een dier met een enorme intelligentie te zijn, maar meer een met een enorme gevoeligheid voor lichaamstaal. Een dierlijk instinct, om precies te zijn[15]. Oskar Pfungsts inzicht kwam bekend te staan als het Kluger Hans effect – het gevaar dat het gedrag van een vraagsteller de ondervraagde onbewust in een bepaalde richting stuurt, of deze nou mens of dier is.

Tijdens de Tweede Wereldoorlog deed behaviorist B.F. Skinner een poging, onder de naam Project Duif, om een door duiven geleid projectiel te ontwikkelen. Een lens die een afbeelding van het doel op een scherm kon reflecteren werd in de voorzijde van een bom gestopt; een duif die getraind was om het doel te herkennen werd ook in de bom geplaatst en zou tegen het scherm pikken als het projectiel van het doel afweek. Project Duif werd nooit een succes aangezien pikkende duiven werden overschaduwd door de ontwikkeling van elektronische navigatiesystemen.

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[13] By using *hengst* instead of *paard* I conserved the alliteration.

[14] I had to make several changes in this sentence to create an acceptable construction in Dutch that is idiomatically correct. I decided to use *strenger* and *verzachtten* as opposites of a facial expression. At first I wanted to use *ontspannen*, but I did not choose this option as it does not properly show the contrast. I chose to use *verandering* instead of using *verzachtten* again as it is all about the change of expression.

[15] I chose not to translate 'in fact' with *in feite* because the slight difference in meaning would make it sound unnatural. I therefore chose for this option that has a more substantial difference in meaning, but serves as an explanation of the references to instinct.

Dit was pas één van de vele projecten die Skinner ontwikkelde als onderdeel van zijn overtuiging dat alle dieren kunnen leren en hun gedrag kunnen veranderen en dat taal slechts een aanvulling op geleerd gedrag is. Zijn bekendste uitvinding is de Skinner-box – of de operante conditioneringskamer. De doos bevatte één of meer hendels waar een dier op kon drukken met als gevolg dat er op één of meer plaatsen voedsel uitgegeven zou worden. Skinner deed een rat of duif in de doos en liet zien dat de dieren snel doorhadden dat ze eten kregen zodra ze op de hendel drukten. Skinner benadrukte dat ze alleen de hendel gebruikten als ze beloond werden voor de actie, een proces dat hij 'vormen' noemde. Hij breidde zijn theorie uit om te kunnen concluderen dat menselijk gedrag, inclusief taal, aangeleerd is door onze omgeving. Er is geen verschil tussen het leren door mensen en door dat van andere dieren. Als Skinner gelijk had, en taal geleerd moet worden en geen instinct is, dan zou elk dier met een bepaald niveau van intelligentie in staat moeten zijn te leren praten en gestimuleerd kunnen worden om taal te gebruiken.

Wat bespreken dolfijnen?[16]

Dolfijnen worden al lang erkend als een van de slimste soorten zoogdieren met hun eigen sterk geëvolueerde communicatiesysteem van klikken en fluiten. In de jaren 60 van de vorige eeuw begonnen Amerikaanse wetenschappers met het bestuderen van de complexe hersenen van dolfijnen en te analyseren hoe zij met elkaar communiceren en, ook nog, of wij met hen zouden kunnen communiceren. Al snel was de interesse van het Amerikaanse leger gewekt. Stel je eens voor, een intelligent dier, in staat om bevelen te begrijpen en op te volgen, dat door vijandelijke wateren kan zwemmen zonder gedetecteerd te worden.

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[16] I decided not to use *Waarover praten dolfijnen or Waar praten dolfijnen over* as the first choice sounds ungrammatical and the second choice is grammatically and visually unattractive. *Wat bespreken dolfijnen* does not change meaning and still describes the action of speaking; *bespreken* is the word for ´talking about something´.

In 1964 kreeg Dwight 'Wayne' Batteau subsidie van de Amerikaanse marine om een mens/dolfijn communicatiemiddel te ontwikkelen. Hij beschreef het project als 'een onderzoeksprogramma dat bedoeld was om de uitvoerbaarheid te bepalen van het opstellen van een taal, die lijkt op Engels, voor mens en dolfijn'. Een elektronisch apparaat, een transfonometer[17], werd ontworpen om de klinkers en medeklinkers van mensen om te zetten naar fluittonen. Deze geluiden werden onder water uitgezonden en de dolfijnen reproduceerden de fluittonen. Speciaal getraind marinepersoneel was in staat om deze fluittaal te leren en met getrainde dolfijnen te communiceren.

Batteau verdronk in 1967 voordat het project voltooid was en sindsdien is veel van de informatie over het werk van de marine met dolfijnen geheim. Wél weten we dat er dolfijnen getraind zijn om explosieven en afluisterapparatuur aan vijandelijke schepen en onderzeeërs te bevestigen. En, in de golfoorlogen werden dolfijnen gebruikt om de zeebodem te onderzoeken op mijnen. Het communicatiemiddel voor mens en dolfijn mag mensen dan wel in staat gesteld hebben om bevelen aan dolfijnen te geven, er is geen bewijs dat dit meer is dan, laten we zeggen, de mate waarin een schaapshond de bevelen van zijn baas kan leren en uitvoeren. Batteaus dolfijnen zeiden niets terug – niet door te fluiten en ook niet op een andere manier.

Onderzoeker John C. Lily probeerde om dolfijnen als mensen te laten praten en beweerde in de jaren 60 van de vorige eeuw dat hij hen geleerd had het alfabet de reproduceren. Opnames die gemaakt zijn op zijn onderzoekscentrum op de Maagdeneilanden bevatten een aantal voorbeelden waarop dolfijnen blijkbaar menselijke geluiden echoën met hoge piepgeluiden, maar er was geen bewijs van dolfijnen die daadwerkelijk menselijke woorden uitspraken.

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[17] I could not find any specificities for this device, or an official Dutch translation. I decided to naturalise the word by replacing the 'ph' sound with an 'f' as is done in 'telephone' and *telefoon*.

Sindsdien hebben dolfijnentaal-onderzoeken zich geconcentreerd op bewijzen dat dolfijnen menselijke taal kunnen begrijpen en interpreteren in plaats van het te reproduceren. Dit is veel logischer aangezien de anatomie van een dolfijn niet geschikt is om mensengeluiden te maken.

In de jaren 80 was een vrouwelijke tuimelaar het onderwerp van Louis Hermans talenstudies in het Kewalo Basin Marine Mammal Laboratory in Hawaï. Onderzoekers gebruikten gebarentaal waarmee ze de dolfijnen zeer complexe instructies konden geven. 'Linker mand, rechter bal' vraagt de dolfijn bijvoorbeeld om de bal rechts van haar in de mand aan haar linkerzijde te doen. Maar 'rechter mand, linker bal' betekent het tegenovergestelde – doe de bal aan de linkerkant in de mand aan de rechterkant. De resultaten werden in 1984 gepubliceerd in *Cognition*, een tijdschrift voor menselijke psychologie. 'De dolfijnen konden de betekenis van woorden begrijpen en ook hoe deze wordt beïnvloed door woordvolgorde', aldus Herman.

Tot nu toe is de droom van een dialoog tussen mensen en dolfijnen nog geen werkelijkheid geworden. Dolfijnen hebben klaarblijkelijk een complex communicatiesysteem, maar we zijn nog ver verwijderd van het kunnen interpreteren van de betekenissen die de klikken en fluittonen hebben. We weten niet eens wat ze tegen elkaar zeggen, laat staan dat we zelf een gesprek met ze kunnen voeren. Zijn het ontologische discussies over de toekomst van de planeet, of simpelweg 'Laten we wat zalm zoeken om op te eten'? Zoals een zekere taalexpert zegt: 'Hun capaciteit voor communicatie kan verschillen van het niveau van een blaffende hond tot mogelijk praten.'

De indrukwekkendste taalexperimenten tussen verschillende diersoorten[18] zijn gedaan met apen, die het meest aan ons verwant zijn. Noam Chomsky en zijn volgelingen betogen dat

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[18] I chose to describe the English word here as there is not Dutch equivalent. I could have opted for a neologism such as *intersoortelijk*, but I think that would have made the meaning ´interspecies´ unclear.

de mogelijkheid die mensen hebben om taal te gebruiken zich ontwikkelde na de evolutionaire breuk tussen mensen en apen. Ze wijzen op het gemak waarmee kinderen zich een taal eigen maken. Kinderen, zeggen zij volhardend, hebben een aangeboren geneigdheid voor taal die apen simpelweg niet bezitten. Volgens Chomsky was het 'net zo waarschijnlijk dat een aap zou laten zien dat hij kan praten als dat er ergens een eiland is met vogels die niet hoeven te vliegen, maar wel zitten te wachten tot mensen hen dat komen leren'.

In de jaren 70 van de vorige eeuw bracht Herbert Terrace, een psycholoog van de Universiteit van Columbia in de VS, een babychimpansee (die speels Nim Chimpsky werd genoemd naar de beroemde linguïst) naar de familie LaFarge in New York. Nim werd net als de andere familieleden behandeld. Hij had zeven menselijke broertjes en zusjes en hij werd het eerste jaar overal naar toe gesleept door zijn surrogaatmoeder, Stephanie LaFarge. Hij at menselijk voedsel, droeg luiers en kleding, poetste 's avonds zijn tanden en – misschien wat ongewoon voor een kind – genoot van een sigaret en een kop koffie. Nim kreeg thuis en in een speciaal gebouwd klaslokaal op Columbia[19] onderwijs in Amerikaanse gebarentaal.

Zodra Nim een koppige kleuter was geworden werd het voor de familie LaFarge te moeilijk om voor hem te zorgen. Hij werd naar een gebouw van de universiteit gebracht en werd verzorgd door vele dierentrainers. Na vier jaar kondigde Terrace aan dat Nim een woordenschat van meer dan 100 woorden had, maar Project Nim werd in 1977 gestopt nadat de chimpansee één van zijn onderwijzers had gebeten. Toen de resultaten van het project gepubliceerd werden verklaarde Terrace het tot een mislukking. Hij zei dat, terwijl hij naar een video keek waarop Nim naar een onderwijzer gebaarde, hij zich realiseerde dat de chimpansee de meeste gebaren imiteerde, maar vrijwel nooit zelf spontaan een gebaar maakte. Herbert had het Kluger Hans Effect proberen te vermijden, maar hij concludeerde uiteindelijk dat Nim en andere chimpansees die gebarentaal hadden geleerd, voornamelijk imiteerden en

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[19] The text says 'Colombia', but this must be a typo. The prefix her is 'at' which means a country cannot follow and as there is no previous mention of 'Colombia' but of 'Columbia' I changed this.

niet zozeer taal gebruikten. Vergeleken met een mensenkind voegde Nim zelden nieuwe woordcombinaties toe en leek hij geen idee van zinsopbouw of grammaticale basisprincipes te hebben. Chomsky, zo leek het, had gelijk gehad. Nim zou taal nooit zo kunnen gebruiken zoals mensen dat doen – grammatica gebruiken om zinnen te maken en ideeën te uiten. Hij stelde nooit een vraag.

Na het instorten van het project, wist niemand echt wat ze met Nim moesten doen, deze chimpansee die door zijn opvoeding moest geloven dat hij een jongen was. Hij had nooit eerder in een kooi gezeten of andere chimpansees ontmoet. Er kwam een publiek protest nadat hij was verkocht aan een laboratorium voor experimentele medicijnen. Nims surrogaatzuster Jenny Lee vroeg een journalist: 'Hoe verzoen je jezelf met een kleine chimp in blauwe dekens, die uit een fles drinkt en Pampers draagt […] en dan als hij tien is, hem in een kooi in een lab stopt, met niets zachts, niets warms, zonder mensen?'[20] Dit is mijn broer. Dit is iemand die ik grootgebracht heb.'

Nim kreeg uiteindelijk een thuis aangeboden in een dierenpension in Texas, waar hij urenlang oude tijdschriften doorbladerde en naar verzorgers probeerde te gebaren. Andere chimpansees werden als metgezellen aan hem voorgesteld, maar Nim verlangde altijd naar menselijk gezelschap. Hij overleed aan een hartaanval in maart 2000 op 26-jarige leeftijd.

De recentste bekendheid op het gebied van 'pratende' apen is Kanzi, een bonobo, die geleerd heeft om te 'praten' door naar lexigram[21] symbolen te wijzen op een computer. Op zijn toetsenbord staan honderden kleurrijke symbolen die alle woorden die hij kent vertegenwoordigen. Niet alleen makkelijke woorden zoals 'bal' en 'banaan' en 'kietelen', maar ook moeilijke conceptuele woorden zoals 'later' en 'van'. Als hij het symbool aanraakt

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[20] This quote is not well formulated in the ST, but I decided to keep its structure. As I was unable to find the original quote and the author has decided to use this version, I kept close to the ST even though it may come across as ungrammatical. The message is clear so I do not think it is necessary to make any further changes.
[21] I kept this as there is no Dutch translation and should still make sense to the reader. As the word is similar to *telegram* I believe the reader will be able to understand that a lexigram will have something to do with a certain representation of words, this is also explained by the author.

wordt het woord hardop herhaald. Wat primatologe Dr. Sue Savage-Rumbaugh van Iowa's Great Ape Trust zo opwindt, is dat Kanzi zinnen met twee woorden samenstelt. Het woord 'overstroming' staat bijvoorbeeld niet op het lexigram, dus toen er een overstroming in Iowa was wees Kanzi naar twee woorden: 'groot' en 'water'. Hij kreeg boerenkool te eten en omdat hij het moeilijk kon kauwen wees hij naar 'langzaam' en 'sla'.

Kanzi lijkt ook *theory of mind* ontwikkeld te hebben, een vaardigheid die gelinkt wordt aan menselijke taal. Dit betekent dat hij is staat is om zich de wereld voor te stellen vanuit het perspectief van iemand anders. Toen hij zag dat één van de onderzoekers een vinger miste, vroeg hij: 'pijn?' En, hij gebruikt taal creatief. Kanzi kreeg te horen dat een Zweedse wetenschapper, Pår Segerdahl, langs zou komen en wat brood voor hem zou meenemen. Er was geen symbool voor wetenschapper op het lexigram, dus wees Kanzi naar de symbolen voor 'brood' en voor 'peer'. Toen hem werd gevraagd of hij Pår bedoelde of peren om te eten wees hij naar de wetenschapper.

Onderzoekers hebben geobserveerd dat Kanzi vier dezelfde geluiden gebruikt voor vier woorden: 'banaan', 'druif', 'sap' en 'ja'. Zou dit het begin van spraak kunnen zijn, of is het net zo veelbetekenend als een hond die op een bepaalde manier blaft als hij zijn baasje ziet? Critici zeggen dat Kanzi op lichaamstaal reageert en dat onderzoekers zijn gebruik van woorden te creatief interpreteren. Dr. Savage-Rumbaugh heeft geprobeerd het Kluger Hans effect te vermijden door een aantal van haar tests uit te voeren terwijl zij heel stil zit met een lasmasker op, zodat Kanzi haar gezicht niet kan zien. Ze doet een aantal ongebruikelijke voorstellen zoals 'stop de dennennaalden in de koelkast', wat Kanzi bijna altijd begrijpt.

Het debat zet zich voort. We stellen ons in ieder geval geen toekomstige wereld met babbelende bonobo's[22] voor zoals in *Planet of the Apes*. Misschien kunnen we er het beste maar zo naar kijken: Kanzi heeft laten zien dat hij een deskundig maker en gebruiker is van

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[22] I kept the alliteration here even though this results in a slight difference in meaning. The apes in *Planet of the Apes* were chimpanzees, but as a bonobo is a type of chimpanzee I feel this is justified. In the ST 'primate' is used, but this can also be a hypernym for bonobo and does not necessarily need to refer to chimpanzees.

stenen gereedschap, inclusief een aantal heel scherpe messen (die wetenschappers helpen bij

het begrijpen van de vaardigheden die onze voegprehistorische voorouders gebruikten). Dus,

deze praatexperimenten bieden ons in ieder geval een fascinerende eerste blik op een fase in

de evolutie van menselijke taal. Maar, uiteindelijk, zit het cruciale verschil in onze hersenen.

Ze zijn bijna vier keer zo groot als die van een chimpansee. Het zit hem nou net in die extra

kilo grijze massa.

Appendix

Talking Animals

Why is it that we can but other animals can't? Let's take our closest relatives, our primate cousins, the gorillas.

Ambam is a silverback lowland gorilla who is being rehabilitated at Aspinall's Port Lympne centre in Kent. Ambam became something of a YouTube sensation when he was filmed walking on two legs. It's extraordinary to see this immense creature standing upright, looking around, just like a human being. Gazing into his eyes, you see intelligence, and emotions. Gorillas can laugh and cry. But there the communication seems to stop. Because what they can't do is talk.

For a start they just don't have the vocal equipment. A defining feature for our species' ability to speak is a lowered larynx. This, combined with controlled breathing (apes cannot hold their breath) and the finely tuned muscles in the tongue and lip, enable the air we breathe to be forced through the vocal chords and into the mouth, where it can be shaped with extraordinary subtlety. Just say 'hello' to yourself and see how your mouth and tongue move. Well, no other primate can do this. And of course we have the brains for it. But why are we so keen to speak to other animals?

Perhaps it's because of our otherness from the rest of creation that we are fascinated by the idea. From countless mythic stories in tribal cultures around the world, from the Serpent in the Garden of Eden to C.S. Lewis' Narnia chronicles, from *The Jungle Book* and Bugs Bunny to Mr. Ed, Dr Doolittle and Stewart Little, the talking mouse, book and movie fiction feeds our yearning for creatures who can talk to us. This desire to communicate with the rest of creation has inspired entertainers, scientists and charlatans in equal measure.

Animals with allegedly extraordinary communication skills have been doing good box office for hundreds of years. Signor Capelli's musical cats were billed in 1829 as the 'greatest

wonder in England', and Charles Dickens is said to have watched another of his acts, Munito

the Wonder Poodle, who could play dominoes, recognize colours and count. Dickens wrote of

seeing the act for the first time and being fooled by the dog's 'answering questions, telling the

hour of the day, the day of the week or date of the month, and picking out any cards called for

from a pack spread on the ground'.

Toby the Sapient Pig

'Toby the Sapient Pig' was introduced to London audiences around 1817 as 'the greatest

curiosity of the present day'. According to the billboards, Toby would 'spell and read, play at

cards, tell any person what o'clock it is to a minute by their own watch… and what is more

astonishing he will discover a person's thoughts'.

Needless to say, most of these acts were based on trickery rather than genuine

language ability. Dickens watched Munito's performance more carefully a second time and

this time he noticed that the dog was choosing cards by smell rather than by sight – the master

had daubed them with aniseed.

We're just as intrigued by the possibility of talking animals today. Type in 'Talking

animals' on the YouTube website and you'll be overwhelmed by an astonishing array of

video clips of talking pets, like Odie the Pug dog, who yowl-whispers a most convincing 'I

love you' on command. But away from the trickery and mimicry and the fabrication, serious

scientific attempts have been made to explore to what extent animals have the ability to learn

and understand human language.

Dolphins, horses, parrots and chimpanzees have all been the subject of scientific

research and debate. Oprah Winfrey's television show in the USA recently broadcast an

interview with Kanzi, a bonobo chimp. Kanzi is known as 'the ape who has conversations

with humans'. The debate is a heated one. Linguists like Noam Chomsky argue that language

is unique to humans, whose brains evolved with special language modifications which no

other animal has. According to Chomsky, humans possess a sort of language gene which

enables them to give grammatical order to words. Others suggest that, if earlier hominids had

facilities for communication, then these adaptations may still be present in the modern ape.

Yet another group of researchers argue that some intelligent animals have the ability to learn

some of the fundamental characteristics of human language.

The earliest talking animal story to generate scientific research was probably Hans the

Counting Horse. His owner, a late nineteenth-century German maths teacher called Wilhelm

von Osten, believed that animals were much more intelligent than humans gave them credit

for. Von Osten decided to prove his theory by teaching mathematics to a cat, a bear and a

horse. The cat and the horse were indifferent, but the horse, an Arab stallion called Hans,

showed promise. If Von Osten chalked a number on a blackboard, Hans would use his hoof to

tap the number out – a chalked number 4 would produce four taps of the hoof. Questions on

addition, subtraction, fractions and spelling could all be answered by Hans with the tapping of

his hoof. Word of the clever horse spread, and Von Osten began to exhibit Hans in free shows

all over Germany. Huge crowds gathered to watch Hans answer questions posed by his

master. 'What is the square root of nine?' 'If the fifth day of the month falls on a Monday,

what is the date of the following Thursday?' Hans would be asked to spell out words with his

taps – one tap for A, two taps for B, and so on. His answers were almost 90 per cent correct.

The German board of education assembled a panel of experts to study this equine

genius, and in 1904 the Hans Commission, which included two zoologists, a psychologist and

a circus manager, reported that it could find no signs of trickery and that Hans' abilities

appeared to be genuine.

The investigation was passed on to a psychologist, Oskar Pfungst, who after careful observation came up with a ground-breaking conclusion. Hans the Horse only gave the correct answer when he could see the questioner and the questioner knew what the answer was. Pfungst had watched Von Osten closely and noticed that as the horse's taps approached the correct answer, Von Osten's body posture and facial expressions changed. They became tenser and then relaxed when the horse made the final, correct tap. This relaxing was the cue to Hans to stop his hoof tapping. Thus Hans the horse was shown to be an animal not so much of great intelligence but rather one of great sensitivity to body language. An animal instinct, in fact. Oskar Pfungst's insight came to be known as the Clever Hans Effect – the influence a questioner's cues may exert on their subject, both human and animal.

Project Pigeon during the Second World War was an attempt by American behaviourist B.F. Skinner to develop a pigeon-guided missile. A lens which could reflect an image of the target on a screen was put in the nose of a bomb; a pigeon trained to recognize the target was placed inside the bomb as well and would peck the screen whenever the missile went off target. Project Pigeon never got off the ground, as pigeon pecking was overshadowed by the development of electronic guidance systems.

It was just one of the many projects Skinner developed as part of his belief that all animals can learn and change behaviour and that language is simply an extension of learned behaviour. His best known invention was the Skinner Box – or the operant conditioning chamber. The box contained one or more levers which an animal could press and one or more places from which food could be dispensed. Skinner would put a rat or a pigeon into the box and showed that the animals quickly learned that they would get food every time they pressed the lever. Skinner asserted that they would only manipulate the lever if they were rewarded for the action, a process he called 'shaping'. He explained his theory to conclude that human behaviour, including language, is learned from our environment. There is no difference

between the learning that takes place in humans and that of other animals. If Skinner was right, and language is learned and not instinctive, then every animal with intelligence of a certain level should be able to learn to talk and can be nurtured to use language.

What Do Dolphins Talk About?

Dolphins have long been recognized as one of the smartest of all the mammals, with their own highly evolved system of communication of clicks and whistles. In the 1960s, American scientists began to study the complex brain of dolphins and analyse how they communicated with each other, and, what's more, whether we could communicate with them. It wasn't long before the US military got interested. Imagine an intelligent animal, able to understand and follow instructions, swimming undetected through enemy waters.

In 1964, Dwight 'Wayne' Batteau was funded by the US Navy to develop a man/dolphin communicator. He described the project as 'a program of research intended to determine the feasibility of establishing a language, approaching English, between man and dolphin'. An electronic device called a transphonometer was designed to convert the vowels and consonants of humans into whistles. These sounds were transmitted underwater, and the dolphins reproduced the whistles. Specially trained Navy personnel were able to learn this whistle language and communicate with trained dolphins.

Batteau drowned in 1967 before the project was completed, and since then most of the information about the Navy's work with dolphins has been classified. However, we know that dolphins have been trained to attach explosive and listening devices to enemy ships and submarines. And in the Gulf wars dolphins were used to search the seabed for mines. The man/dolphin communicator may have enabled humans to issue commands to dolphins, but there is no evidence that this is more than say a sheepdog's ability to learn and respond to the commands of its master. Batteau's dolphins didn't talk back – in whistles or otherwise.

Researcher John C. Lilly tried to teach dolphins to talk like humans and claimed in the 1960s that he had trained them to replicate the alphabet. Recordings made at his research centre in the Virgin Islands do have a few examples of dolphins apparently echoing human sounds in high-pitched squeaks, but there was no evidence of dolphins actually uttering human words.

Since them, dolphin-language research studies have concentrated on proving that dolphins can understand and interpret human language rather than replicate it, which is a lot more sensible, as the dolphin's anatomy is not suitable for making human sounds.

In the 1980s, a female bottlenose dolphin was the subject of Louis Herman's animal-language studies at the Kewalo Basin Marine Mammal Laboratory in Hawaii. Researchers used a sign language which allowed them to give the dolphins highly complex instructions. For example, 'left basket right ball' asks the dolphin to put the ball on her right into the basket on her left. But 'right basket left ball' means the opposite – put the ball on the left into the basket on the right. The results were published in 1984 in the human psychology journal *Cognition*. 'The dolphins were able to account for both the meaning of words and how word order affects the meaning,' said Herman.

So far the dream of dialogue between man and dolphins remains just that. Dolphins clearly have a complex sound system, but we're a long way off from interpreting the meaning of their clicks and whistles. Never mind conversing with them, we still don't know what they're saying to each other. Is it ontological discussions on the future of the planet or simply 'Let's go get some salmon to eat'? As one language expert comments, 'Their capacity for communication could range from the level of a dog barking all the way to possible talking.'

The most impressive interspecies language experiments have been with primates, our closest relatives. Noam Chomsky and his followers argue that the ability for language developed in

humans after the evolutionary split between humans and primates. They point to the ease with which children acquire language. Children, they insist, have an innate propensity for language which primates simply do not possess. According to Chomsky, it was 'about as likely that an ape will prove to have language ability as there is an island somewhere with flightless birds waiting for humans to teach them to fly'.

In the 1970s Herbert Terrace, a psychologist at Columbia University, brought a baby chimp (playfully named Nim Chimpsky after the famous linguist) to the LaFarge family in New York. Nim was treated just like one of the family. He had seven human siblings and he was carried everywhere for the first year by his surrogate mother, Stephanie LaFarge. He ate human food, wore nappies and clothes, brushed his teeth at night and – somewhat unusually for a child – enjoyed a cigarette and a cup of coffee. Nim was taught American sign language at home and in a classroom built specially at Colombia.

As Nim hit the terrible twos he became too difficult for the LaFarges to look after. He was moved to a mansion owned by the university and was cared for by a series of handlers. After four years, Terrace announced that Nim had a vocabulary of more than 100 words, but in 1977, after the chimp severely bit one of his teachers, Project Nim was stopped. When the results of the project were published, Terrace declared it a failure. He said that, while he was watching a video of Nim signing with a teacher, he realized that the chimp was imitating most of the signs but he almost never made a sign spontaneously. Herbert had tried to avoid the Clever Hans Effect but in the end he concluded that Nim and other chimps who had been taught to sign were merely imitating rather than using language. Compared with a human child, Nim rarely added new word combinations and seemed to have no idea of syntax or the elementary rules of grammar. Chomsky, it seemed, had been right. Nim would never use language in the way humans do – using grammar to form sentences and express ideas. He never asked a question.

After the collapse of the project, no one quite knew what to do with Nim, this chimp who had been raised to believe he was a boy. He'd never been in a cage before or met other chimpanzees. There was a public outcry after he was sold to a laboratory of experimental medicine. Nim's surrogate sister Jenny Lee told a reporter: 'How do you reconcile a tiny chimp in blue blankets, drinking from a bottle and wearing Pampers … and then, when he is ten – him in a lab, in a cage, with nothing soft, nothing warm, with no people? This is my brother. This is somebody I raised'. Nim was eventually offered a home in an animal sanctuary in Texas, where he spent hours looking through old magazines and trying to sign to keepers. Other chimps were introduced as companions, but Nim always relished human companionship. He died of a heart attack in March 2000, aged twenty-six.

The latest celebrity 'talking' primate is Kanzi, a bonobo chimpanzee who has been taught to 'speak' by pointing at lexigram symbols on a computer. On his keyboard are hundreds of colourful symbols representing all the words that he knows. Not just easy words like *ball* and *banana* and *tickle* but difficult concept word like *later* and *from*. When he touches the symbol the word is repeated out loud. What excites primatologist Dr Sue Savage-Rumbaugh at Iowa's Great Ape Trust is that Kanzi is putting two-word sentences together. For instance, the word 'flood' isn't on the lexigram, so when there was a flood in Iowa, Kanzi pointed out two words *big* and *water*. He was given kale to eat and, finding it difficult to chew, he pointed at *slow* and *lettuce*.

Kanzi also seems to have developed theory of mind, a skill closely linked to human language. It means he is able to imagine the world from another person's point of view. When he noticed one of the researchers had a missing finger, he asked 'hurt?' And he uses language creatively. Kanzi was told that a Swedish scientist called Pår Segerdahl was coming to visit and was bringing him some bread. There was no symbol on the lexigram for scientist so

Kanzi pointed to the symbols for *bread* and *pear*. When he was asked if he was talking about Pår or pears to eat, he pointed to the scientist.

Researchers have observed that Kanzi makes the same four sounds for four words: *banana, grape, juice* and *yes*. Could this be the beginnings of speech, or is it no more significant than a dog who gives a particular bark when it sees its master? Critics say Kanzi is reacting to body language and that researchers interpret his use of words too creatively. Dr Savage-Rumbaugh has tried to avoid the Clever Hans Effect by conducting some of her tests sitting very still and wearing a welder's mask so Kanzi can't see her face. She makes a series of unlikely requests, like 'put the pine needles in the fridge', which Kanzi almost always understands.

The debate continues. We're certainly not imagining a future world of prattling primates as in *Planet of the Apes*. Perhaps the most useful way to look at it is this: just as Kanzi has turned out to be an accomplished crafter and user of stone tools, including some very sharp knives (which helps scientists understand skills used by our early prehistoric ancestors), so, at the very least, these talking experiments allow us a fascinating glimpse of a stage in the evolution of human language. But in the end the crucial difference is our brains. They are nearly four times the size of a chimp's. It's all about that extra kilo of grey matter.