# Brain mechanisms involved in anaphor resolution

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| Ethical review        | Approved WMO               |
|-----------------------|----------------------------|
| Status                | Will not start             |
| Health condition type | Other condition            |
| Study type            | Observational non invasive |

# Summary

## ID

NL-OMON30797

**Source** ToetsingOnline

Brief title Anaphor resolution

# Condition

• Other condition

#### Synonym

nvt

#### **Health condition**

geen medisch onderzoek

## **Research involving**

Human

## **Sponsors and support**

Primary sponsor: Universiteit Utrecht Source(s) of monetary or material Support: Ministerie van OC&W,NWO

## Intervention

**Keyword:** event-related fMRI, human brain, language comprehension, modularity, reading, semantics, syntax

## **Outcome measures**

#### **Primary outcome**

The signal extracted is the BOLD signal (Blood Oxygen Dependent), and gives

information about neuronal activation. This measure yields optimal spatial

resolution in terms of localizing activations to specific brain areas and is

therefore very suited to explore issues regarding modularity.

### Secondary outcome

nvt

# **Study description**

### **Background summary**

Some recent linguistic and neurolinguistic models of language processing propose a modular architecture for the human language system (e.g. Reuland, 2001; Friederici & Kotz, 2003). The necessary computations are thought to occur at a syntactic (i.e., grammatical) or semantic (i.e., meaning) level and it is suggested that these different levels of language processing are supported by different cortical networks. In this particular study we are interested in the resolution of the Dutch anaphor 'zich' which can occur in different structural environments. According to Reuland, in a sentence like 'John verbaasde zich' the element 'zich' can only be resolved at the syntactic level. Alternatively, in a structure like 'John legt het boek naast zich' the element 'zich' behaves as a pronoun and can only be resolved at the semantic level. In an FMRI study we would like to examine the hypothesis that different cortical networks support syntactic and semantic computations by using the different uses of the word 'zich'.

### **Study objective**

In an FMRI study we would like to examine the hypothesis that different cortical networks support syntactic and semantic computations by using the different uses of the word 'zich'. The results give us the change to evaluate linguistic (Reuland, 2001) and neurolinguistic models (Friederici & Kotz, 2004) of the human language system.

## Study design

FMRI will be applied to measure brain activation while participants silently read sentences which contain the anaphoric element 'zich' in different structural situations.

### Study burden and risks

The risks of the project are minimal and the task (i.e., reading) is not very demanding. As the results can clearly enhance our understanding of the brain structures involved in language processing, we are convinced that the potential benefits outweigh the potential risks.

# Contacts

**Public** Universiteit Utrecht

Janskerkhof 13 3512 BL Utrecht Nederland **Scientific** Universiteit Utrecht

Janskerkhof 13 3512 BL Utrecht Nederland

**Trial sites** 

# **Listed location countries**

Netherlands

# **Eligibility criteria**

#### Age

Adults (18-64 years) Elderly (65 years and older)

## **Inclusion criteria**

- physically healthy

- age between 18 and 45

- right handed (score higher than 0.4 on the Edinburgh Handedness Inventory)(score higher than )

## **Exclusion criteria**

- metal objects in or around the body (braces, pacemaker, metal fragments)
- drug or alcohol abuse over a period of six months prior to the experiment
- history of closed-head injury
- history of neurological illness or endocrinological dysfunction
- pregnancy
- use of medication other than anticonceptives
- history of psychiatric illness
- diagnosed learning orr language disability

# Study design

## Design

Study type: Observational non invasiveMasking:Open (masking not used)Control:UncontrolledPrimary purpose:Other

# Recruitment

| NL                  |                |
|---------------------|----------------|
| Recruitment status: | Will not start |
| Enrollment:         | 16             |
| Туре:               | Anticipated    |

# **Ethics review**

| Approved WMO       |   |
|--------------------|---|
| Date:              | 15-01-2008  |
| Application type:  | First submission                                    |
| Review commission: | METC Universitair Medisch Centrum Utrecht (Utrecht) |

# **Study registrations**

# Followed up by the following (possibly more current) registration

No registrations found.

# Other (possibly less up-to-date) registrations in this register

No registrations found.

## In other registers

Register CCMO ID NL13371.041.07