SFB 991

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SToRE

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A psycholinguistic view on definites

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1. Theoretical Background: CTD

(modif. version of Löbner 2011:307)

	[–U]	conceptually unique [+U]
[–R]	**SORTAL – SC** *apple stone moment human* ✓**indefinite** ↱definite ↱possessive	**INDIVIDUAL – IC** *pope earth weather Police* ↱indefinite ✓**definite** ↱possessive
conceptually relational [+R]	**RELATIONAL – RC** *colleague arm page idea* ✓**indefinite** ↱definite ✓**possessive**	**FUNCTIONAL – FC** *mother body age birth* ↱indefinite ✓**definite** ✓**possessive**

✓ congruent determination
↱ incongruent determination

1.1 Assumptions: 1) Underlying CT

- Concept Types (CT)
  - Concept type information of nouns is lexically stored
  - Most nouns have only *one* lexically stored ***concept type*** and corresponding frame specification

→***underlying concept type***

1.1 Assumptions: 2) Type shifts

- CTs & Determination
  - Each of the four concept types has a preferred contextual profile (c.f. Löbner 2011), i.e. it is used with specific "congruent" ***determination type*** (DT)

- CTs & Incongruent Determination
  - The interpretation of a noun used with an incongruent DT leads to a reanalysis process, so that its referential properties then match the ones required by the DT.

→conceptual type shift (CT-shift)

1.1 Assumptions: Example

a) Der Papst wohnt in Italien.

(*The Pope lives in Italy*.)

b) Johannes Paul II. war ein freundlicher Papst.

(*John Paul II. was a friendly pope*.)

- ‚Papst' (*pope*) is an IC [+U,+R]
- In a) it is used with congruent determination
- the indefinite article ‚ein' in b) requires a [–U]-concept.
  →incongruency between CT and DT
- the interpretation of b) requires a **reanalysis process**:
  the referential properties of the IC ‚Papst' have to be changed, to match the values required by the DT ‚ein'
  →incongruency coerces a CT-shift

1.2 Research Questions & Hypotheses

- **Empirical Research Questions:**
  - Do CTs and CT-shifts have a measurable cognitive reality?
  - Can we find empirically measurable time differences in the processing of nouns used with congruent vs. incongruent DT?
- **Hypotheses & Prediction:**
  - *Congruent determination* should ***facilitate*** the processing of the respective noun
  - *Incongruent determination* leads to CT-shifts, which should be time-consuming and thus ***slow down*** responses.

2.1 Experiment: Paradigm

- *On-line reaction time experiment* with German NPs containing a combination of *determiner+noun*
- *Lexical decision task*:
  - Task: „Is the presented stimulus a word or a non-word?“
  - triggers lexical and (flat) semantic processing
- *Presentation mode*: auditory
- *Measured variable*: reaction time (RT) via response pad

2.2 Experiment: Stimuli & Method

- *Participants*: 96 German native speakers
- *Stimuli*:
  - target nouns: 80 German nouns – 20 nouns of each CT (matched by frequency and number of letters and phonemes)
  - pseudo words: 80 non-words satisfying the phonotactic rules of German
  - each item was combined with each of the four determiner types *indefinite, definite, possessive, none*

2.2.1 Experiment: Stimuli

- *Four combinations of CT and DT:*

	Concept type			
Det. type	SORTAL [-U, -R]	INDIVIDUAL [+U, -R]	RELATIONAL [-U, +R]	FUNKTIONAL [+U, +R]
indefinite	*ein Apfel* an apple	*ein Papst* a pope	*ein Arm* an arm	*eine Mutter* a mother
definite	*der Apfel* the apple	*der Papst* the pope	*der Arm* the arm	*die Mutter* the mother
possessive	*sein Apfel* his apple	*sein Papst* his pope	*sein Arm* his arm	*seine Mutter* his mother
none	*xxxx Apfel*	*xxxx Papst*	*xxxx Arm*	*xxxx Mutter*

congruent determination
incongruent determination

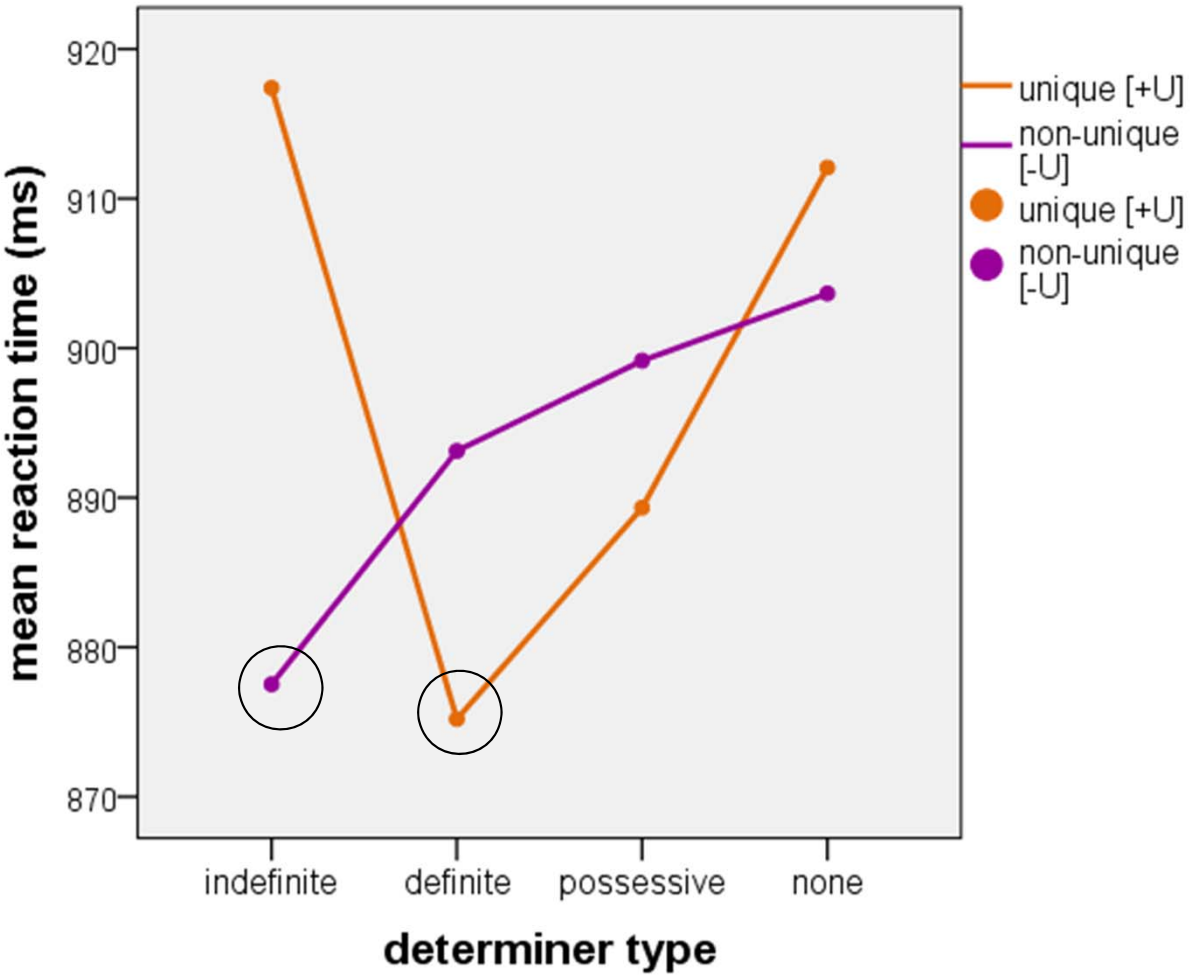
2.2.2 Experiment: Method

Each of the 160 trials consisted of 3 subsequent parts:

+ a fixation stimulus: „beep“
+ one of the three determiners or the neutral determiner stimulus (realized as 400ms white noise)
+ one of the 80 target words or one of the 80 pseudo words

2.3.1 Experiment: Results [±U]

- Mean reaction time for [±U]-concepts

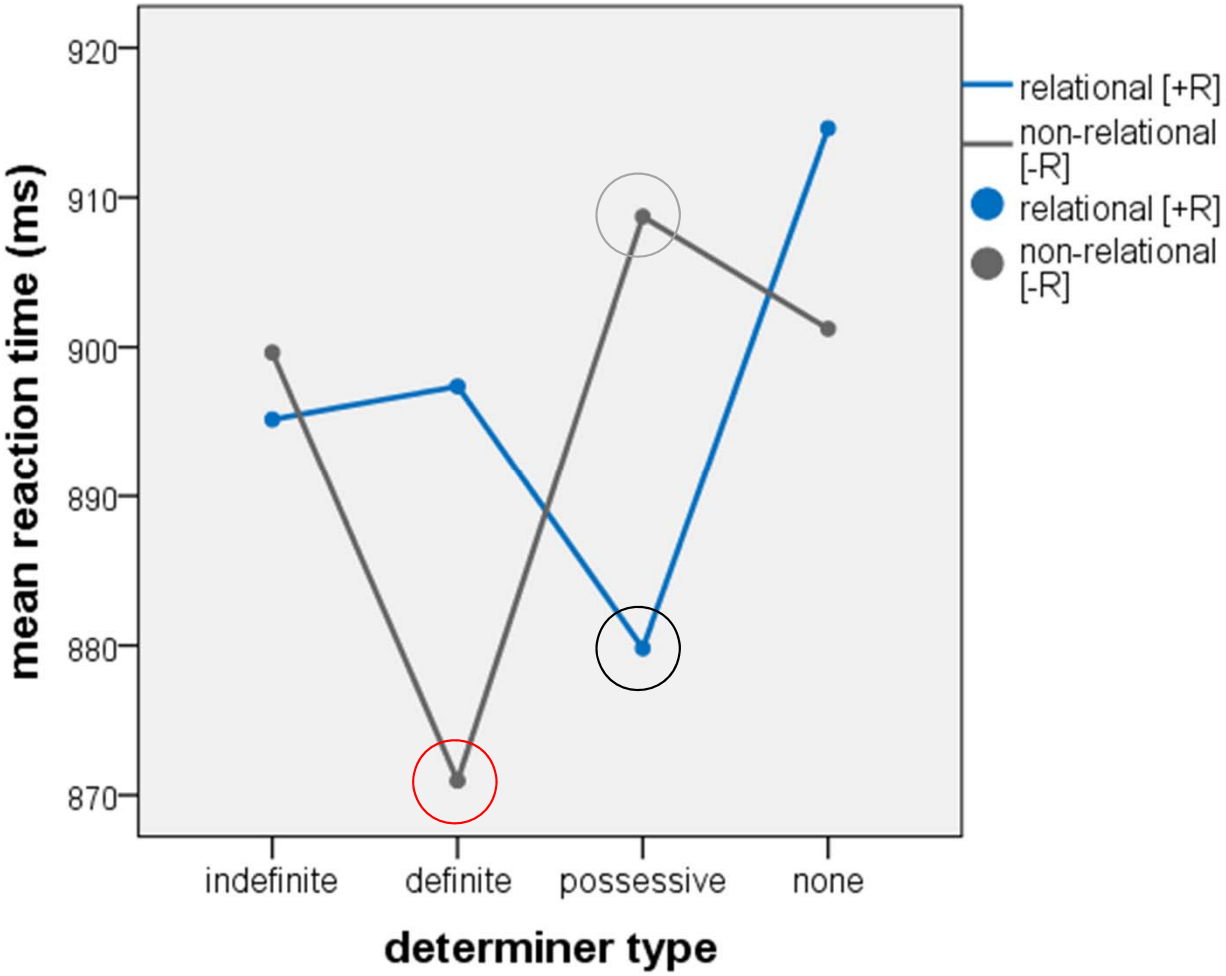


Significant Effects:

- statistically significant interaction effect between determination & uniqueness (F(93)=8.09, p=.00)
- post-hoc comparisons show:
  - significant facilitation of [+U]-nouns by definite DT
  - significant facilitation of [-U]-nouns by indefinite DT

2.3.2 Experiment: Results [±R]

- Mean reaction time for [±R]-concepts

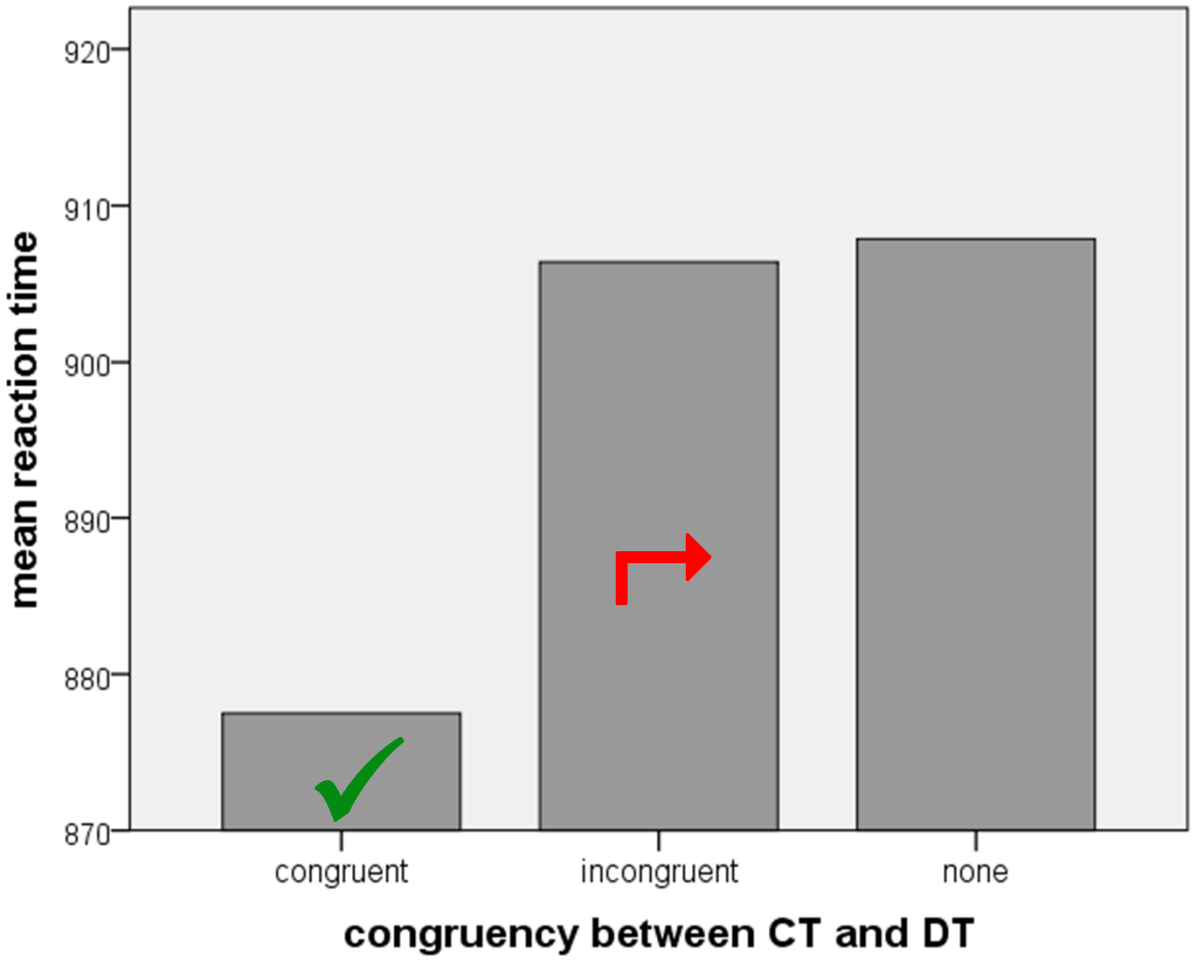


Significant Effects:

- statistically significant interaction effect between determination & relationality (F(93)=6.76, p=.00)
- post-hoc comparisons show:
  - significant facilitation of [+R]-nouns by possessive DT
  - inhibition of [-R]-nouns by possessive DT
  - unexpected significant facilitation effect of [-R]-nouns by definite DT

2.3.3 Experiment: Results Congruency

- Mean reaction times for congruent, incongruent and neutral DT



Significant Effects:

- highly significant difference between congruent, incongruent & no determination (F(94)=12,85; p= .00)
- Post-hoc comparison shows:
  - significant difference between congruent vs. incongruent determination
  - no significant difference between incongruent vs. no determination

→ results cannot be explained by mere gender effect of determination

3. Summary & Further Questions

- Results show evidence for
  - the cognitive reality of the distinction of the four concept types within the CTD
  - the interaction of determiner type and concept type

- Further research objectives:
  - Differences in the data for visual mode of speech perception?
  - Processing stage (lexical or post-lexical)?
  - Mechanisms & time course of processing conceptual information?

References

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