



CLARIN Annual Conference 2018

Pisa, 8-10 October 2018

EXMARaLDA meets WebAnno

Steffen Remus, Hanna Hedeland, Anne Ferger,
Kristin Bührig, Chris Biemann

Hamburg Centre for Language Corpora
Language Technology Group
Universität Hamburg

- Introduction: project context
- Use case: analysing discourse in teacher education
- Requirements
- Implementation
- Experiences
- Outlook

- funding through ‘teaching lab‘ within the project ProfaLE (Professional teachers´ actions to promote subject-based learning under changing social conditions)
- Universität Hamburg is part of the joint ‚Qualitätsoffensive Lehrerbildung‘ (teacher education quality campaign) run by the German federal government and the German states using funds from the German Federal Ministry of Education and Research (BMBF)

needs

- students demand practical relevance in education
 - “how to act as a teacher in my own future lessons?”
- students expect modern i.e. digital forms of information and communication
- students suffer from time pressure

claims

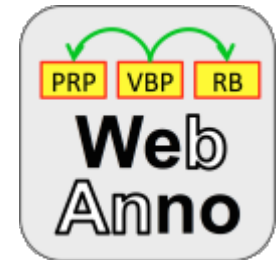
- teachers are expected to instruct pupils in linguistic reflection
- teachers have to perform a daily diagnosis of pupils' actions and comprehension
- teachers are expected to provide state of the art teaching in their specialist disciplines
- teachers are expected to participate in advanced training programmes

- analyses of classroom interaction
 - well structured interaction
 - extensive research literature
- comprehension processes
 - different dimensions of language use
(verbal, kinesic, prosodical: intonation, pauses)
 - interrelation between different actants
 - quite relevant for learning and teaching

- challenges in teaching students in analysing authentic discourse data
- authentic discourse data – vs. ‘vignettes’
 - different conventions in documenting discourse data (protocols, scripts, transcriptions)
 - different conventions of notation
 - different traditions in analysing discourse
 - different approaches and methodologies
- no recipes for teaching discourse analysis within education

- **transcripts** are crucial for qualitative analysis
 - theory-laden models of discourse
- **annotation** makes students' analyses explicit
 - should allow for assessment (gold standard) and comparison (**intra-/inter-annotator agreement**)
- **web-based tools** are suitable for teaching
- **open source software** is important for re-use
 - reliability?
 - sustainability?

- **WebAnno** fulfils most requirements, but lacked support for spoken data
 - representation of spoken features (e.g. speakers, non-verbal behaviour)
 - media playback
 - transcript visualization



Solution:

- **WebAnno plugin** development by the *Language Technology Group (LT)* in cooperation with the *Hamburg Centre for Language Corpora (HZSK)*, both at the University of Hamburg
- development of a suitable **teaching corpus** of classroom discourse

- parsing of transcriptions (HIAT) in the **TEI-based ISO standard** for Transcription of Spoken Language format created with the **EXMARaLDA** transcription and annotation tool
- mapping using the Common Analysis System (**CAS**) within Apache's Unstructured Information Management Architecture (**UIMA**)
- transcription convention specific visualizations of the **annotation and transcript views**
- playback of several **audio and video** formats

- several **speakers** exist and are described by their individual metadata
 - speaker identity and metadata refers to *some parts of the texts only*, i.e. those belonging to a certain speaker
- speaker contributions **overlap**
 - *serialisation of speaker contributions* and their units is possible but non-trivial – time information remains crucial, overlaps must be recognised

- **non-phonological** material (e.g. breathing, laughter, coughing) occurs in the transcribed text
- there are **non-verbal** speaker contributions (e.g. waving, nodding), possibly parallel to transcribed text
- non-verbal behaviour or **relevant background noise** may span across speaker contributions
- **time-based annotations** may start and end within tokens

WebAnno Annotation view

Document Page Script Help Workflow

Open Prev. Next Export Settings First Prev. Go to 10 Next Last LTR/RTL Guidelines Reset Finish

1_demo_multimodal/Beckhams.xml

Showing 10-29 of 113 sentences [document 1 of 2]

Annotation

14 ((0.5s) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s) bow, wham, ((0.5s) smack?

15 I mean did you think:" Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s) David?

16 I felt that, yeah.

17 Definitely.

18 You did I hope, didn't you?

19 Did you?

20 ((0.3s) Yeah.

21 ((laughing))

22 ((laughing)) Was it really like that?

23 ((laughing)) Yeah.

24 Yeah, yeah, I was/ I was/ it was definitely.

25 As soon as I see her.

26 You know, I didn't even have to meet her.

27 I seen her on the telly and I just wanted to meet her.

28 You know, I just fancied her.

Layer Surface form

Forward annotation

Annotation

No annotation selected!

GEFÖRDERT VOM

WebAnno Annotation view

Document Page Script Help Workflow
Open Prev. Next Export Settings First Prev. Go to 10 Next Last LTR/RTL Guidelines Reset Finish

1_demo_multimodal/Beckhams.xml

Showing 10-29 of 113 sentences [document 1 of 2]

Annotation

14 ((0.5s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, wham, ((0.5s)) smack?

15 I mean did you think:" Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s)) David?

16 I felt that, yeah.

17 Definitely.

18 You did I hope, didn't you?

19 Did you?

20 ((0.3s)) Yeah.

21 ((laughing))

22 ((laughing)) Was it really like that?

23 ((laughing)) Yeah.

24 Yeah, yeah, I was/ I was/ it was definitely.

25 As soon as I see her.

26 You know, I didn't even have to meet her.

27 I seen her on the telly and I just wanted to meet her.

28 You know, I just fancied her.

Speaker assignment

Layer Surface form

Forward annotation

Annotation

No annotation selected!

GEFÖRDERT VOM

WebAnno Annotation view

Document Page Script Help Workflow
Open Prev. Next Export Settings First Prev. Go to 10 Next Last LTR/RTL Guidelines Reset Finish

1_demo_multimodal/Beckhams.xml

Showing 10-29 of 113 sentences [document 1 of 2]

Annotation

14 ((0.5s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, wham, ((0.5s)) smack?

15 I mean did you think:" Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s)) David?

16 I felt that, yeah.

17 Definitely.

18 You did I hope, didn't you?

19 Did you?

20 ((0.3s)) Yeah.

21 ((laughing))

22 ((laughing)) Was it really like that?

23 ((laughing)) Yeah.

24 Yeah, yeah, I was/ I was/ it was definitely.

25 As soon as I see her.

26 You know, I didn't even have to meet her.

27 I seen her on the telly and I just wanted to meet her.

28 You know, I just fancied her.

Non-phonological/non-verbal material

Layer Surface form

Forward annotation

Annotation

No annotation selected!

GEFÖRDERT VOM

WebAnno Annotation view

Document Page Script Help Workflow

Open Prev. Next Export Settings First Prev. Go to 10 Next Last LTR/RTL Guidelines Reset Finish

1_demo_multimodal/Beckhams.xml

Showing 10-29 of 113 sentences [document 1 of 2]

Annotation

14 ((0.5s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, whom, ((0.5s)) smack?

15 I mean did you think:" Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s)) David?

16 I felt that, yeah.

17 Definitely.

18 You did I hope, didn't you?

19 Did you?

20 ((0.3s)) Yeah.

21 ((laughing))

22 ((laughing)) Was it really like that?

23 ((laughing)) Yeah.

24 Yeah, yeah, I was/ I was/ it was definitely.

25 As soon as I see her.

26 You know, I didn't even have to meet her.

27 I seen her on the telly and I just wanted to meet her.

28 You know, I just fancied her.

Layer Surface form

Forward annotation

Annotation

No annotation selected!

Time aligned media playback

GEFÖRDERT VOM



T27 ▶		T28 ▶		T29 ▶																
PAR [v]	((0.5s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, wham, ((0.5s)) smack?																			
T30 ▶		T31 ▶		T32 ▶		T33 ▶														
PAR [v]	I mean did you think: " Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s)) David?																			
DAV [v]	I felt that, yeah.																			
T34 ▶		T35 ▶		T36 ▶		T37 ▶		T38 ▶		T39 ▶		T40 ▶		T41 ▶		T42 ▶		T43 ▶		
PAR [v]	Did you?		((laughing))		Was		it really like that?													
VIC [v]			((0.3s))		Yeah.		((laughing))		((laughing))		((laughing))									
DAV [v]	Definitely. You did I hope, didn't you?					((laughing)) Yeah. Yeah, yeah, I was/ I was/ it was definitely. As soon as I see					her.									
N [nn]						((laughter))														
T44 ▶		T45 ▶		T46 ▶																
DAV [v]	You know, I didn't even have to meet her. I seen her on the telly and I just wanted to meet her. You know, I just fancied her.																			
T47 ▶		T48 ▶		T49 ▶		T50 ▶		T51 ▶		T52 ▶										
PAR [v]	And you obviously weren't disappointed when you got to gether.					Ah, similar for you, Victoria?														
VIC [v]						Yeah. ((1.2s))														
DAV [v]	((0.9s)) So, it was just a case of getting together then.					Definitely not.														
T53 ▶		T54 ▶		T55 ▶		T56 ▶		T57 ▶												
VIC [v]	((laughing)) No, I mean, I knew as soon as I met him. I mean, ((0.4s)) the/ one of the most attractive things I found with David is that																			
DAV [v]	What? Disappointed?																			
N [nn]	((laughter))																			
T58 ▶		T59 ▶		T60 ▶																
VIC [v]	((0.3s)) he shared the same sort of family values as me. ((0.3s)) You know he was sitting there with his family and/ and I really liked that. And he is a very kind																			
T61 ▶		T62 ▶		T63 ▶		T64 ▶														
PAR [v]	W/ do/ what's been the lowest? That's the/ the nice part of the marriage.																			
VIC [v]	((0.5s)) person. And we/ we are really good friends, on top of everything.																			
T65 ▶		T66 ▶		T67 ▶																
PAR [v]	What's been the lowest part of the marriage? There is a/ there is a piece in the book, which is quite/ quite moving actually.																			
T68 ▶		T69 ▶		T70 ▶																
PAR [v]	((0.5s)) And it's/ it's about when the/ the media accused David of having an affair. ((0.6s)) Tell us about that.																			
T71 ▶		T72 ▶		T73 ▶																
VIC [v]	That was probably one of the most difficult things to actually write in the book. Obviously, it's lovely writing all the nice things that've happened																			

WebAnno Transcript view

Beckhams



Video playback

T27 ▶ T28 ▶ T29 ▶

PAR [v] ((0.5s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, wham, ((0.5s)) smack?

T30 ▶ T31 ▶ T32 ▶ T33 ▶

PAR [v] I mean did you think: " Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s)) David?
DAV [v] I felt that, yeah.

T34 ▶ T35 ▶ T36 ▶ T37 ▶ T38 ▶ T39 ▶ T40 ▶ T41 ▶ T42 ▶ T43 ▶

PAR [v] Did you? ((laughing)) Was it really like that?
VIC [v] ((0.3s)) Yeah. ((laughing)) ((laughing)) ((laughing))
DAV [v] Definitely. You did I hope, didn't you? ((laughing)) Yeah. Yeah, yeah, I was/ I was/ it was definitely. As soon as I see her.
N [nn] ((laughter))

T44 ▶ T45 ▶ T46 ▶

DAV [v] You know, I didn't even have to meet her. I seen her on the telly and I just wanted to meet her. You know, I just fancied her.

T47 ▶ T48 ▶ T49 ▶ T50 ▶ T51 ▶ T52 ▶

PAR [v] And you obviously weren't disappointed when you got together. Ah, similar for you, Victoria?
VIC [v] Yeah. ((1.2s))
DAV [v] ((0.9s)) So, it was just a case of getting together then. Definitely not.

T53 ▶ T54 ▶ T55 ▶ T56 ▶ T57 ▶

VIC [v] ((laughing)) No, I mean, I knew as soon as I met him. I mean, ((0.4s)) the/ one of the most attractive things I found with David is that
DAV [v] What? Disappointed?
N [nn] ((laughter))

T58 ▶ T59 ▶ T60 ▶

VIC [v] ((0.3s)) he shared the same sort of family values as me. ((0.3s)) You know he was sitting there with his family and/ and I really liked that. And he is a very kind

T61 ▶ T62 ▶ T63 ▶ T64 ▶

PAR [v] W/ do/ what's been the lowest? That's the/ the nice part of the marriage.
VIC [v] ((0.5s)) person. And we/ we are really good friends, on top of everything.

T65 ▶ T66 ▶ T67 ▶

PAR [v] What's been the lowest part of the marriage? There is a/ there is a piece in the book, which is quite/ quite moving actually.

T68 ▶ T69 ▶ T70 ▶

PAR [v] ((0.5s)) And it's/ it's about when the/ the media accused David of having an affair. ((0.6s)) Tell us about that.

T71 ▶ T72 ▶ T73 ▶

VIC [v] That was probably one of the most difficult things to actually write in the book. Obviously, it's lovely writing all the nice things that've happened

GEFÖRDERT VOM



Bundesministerium
für Bildung
und Forschung



T27 ▶ T28 ▶ T29 ▶

PAR [v] ((0.5s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, wham, ((0.5s)) smack?

T30 ▶ T31 ▶ T32 ▶ T33 ▶

PAR [v] I mean did you think: " Good God this/ this is the guy, this is the girl I'm gonna get married to and live the rest of my life with" ((0.4s)) David?
DAV [v] I felt that, yeah.

T34 ▶ T35 ▶ T36 ▶ T37 ▶ T38 ▶ T39 ▶ T40 ▶ T41 ▶ T42 ▶ T43 ▶

PAR [v] Did you? ((laughing)) Was it really like that?
VIC [v] ((0.3s)) Yeah. ((laughing)) ((laughing)) ((laughing))
DAV [v] Definitely. You did I hope, didn't you? ((laughing)) Yeah. Yeah, yeah, I was/ I was/ it was definitely. As soon as I see her.
N [nn] ((laughter))

T44 ▶ T45 ▶ T46 ▶

DAV [v] You know, I didn't even have to meet her. I seen her on the telly and I just wanted to meet her. You know, I just fancied her.

T47 ▶ T48 ▶ T49 ▶ T50 ▶ T51 ▶ T52 ▶

PAR [v] And you obviously weren't disappointed when you got together. Ah, similar for you, Victoria?
VIC [v] Yeah. ((1.2s))
DAV [v] ((0.9s)) So, it was just a case of getting together then. Definitely not.

T53 ▶ T54 ▶ T55 ▶ T56 ▶ T57 ▶

VIC [v] ((laughing)) No, I mean, I knew as soon as I met him. I mean, ((0.4s)) the/ one of the most attractive things I found with David is that
DAV [v] What? Disappointed?
N [nn] ((laughter))

T58 ▶ T59 ▶ T60 ▶

VIC [v] ((0.3s)) he shared the same sort of family values as me. ((0.3s)) You know he was sitting there with his family and/ and I really liked that. And he is a very kind

T61 ▶ T62 ▶ T63 ▶ T64 ▶

PAR [v] W/ do/ what's been the lowest? That's the/ the nice part of the marriage.
VIC [v] ((0.5s)) person. And we/ we are really good friends, on top of everything.

T65 ▶ T66 ▶ T67 ▶

PAR [v] What's been the lowest part of the marriage? There is a/ there is a piece in the book, which is quite/ quite moving actually.

T68 ▶ T69 ▶ T70 ▶

PAR [v] ((0.5s)) And it's/ it's about when the/ the media accused David of having an affair. ((0.6s)) Tell us about that.

T71 ▶ T72 ▶ T73 ▶

VIC [v] That was probably one of the most difficult things to actually write in the book. Obviously, it's lovely writing all the nice things that've happened

Transcript
visualisation



WebAnno Transcript view

Beckhams



T27 ▶ T28 ▶ T29 ▶

PAR [v] ((0.05s)) But when you first met him when you first met, the two/ yes, the two of you, I mean was it like ((0.4s)) bow, wham, ((0.5s)) smack?

T30 ▶

PAR [v] I mean did you think: " Good Go
DAV [v]

T34 ▶ T35 ▶

PAR [v] Did you?
VIC [v]
DAV [v] Definitely. You did I hope, didn't
N [nn]

T44 ▶

DAV [v] You know, I didn't even have to

T47 ▶

PAR [v]
VIC [v]
DAV [v] ((0.9s)) So, it was just a case of

T53 ▶ T54 ▶ T55 ▶

VIC [v] ((laughing)) No, I me
DAV [v] What? Disappointed?
N [nn] ((laughter))

T58 ▶

VIC [v] ((0.3s)) he shared the same sor

T61 ▶ T62 ▶

PAR [v]
VIC [v] ((0.5s)) person. And we/ we are

T65 ▶ T66 ▶

PAR [v] What's been the lowest part of one of the marriages? There is a there is a piece in the book, which is quite quite moving actually.

T68 ▶ T69 ▶ T70 ▶

PAR [v] ((0.5s)) And it's/ it's about when the/ the media accused David of having an affair. ((0.6s)) Tell us about that.

T71 ▶ T72 ▶ T73 ▶

VIC [v] That was probably one of the most difficult things to actually write in the book. Obviously, it's lovely writing all the nice things that've happened

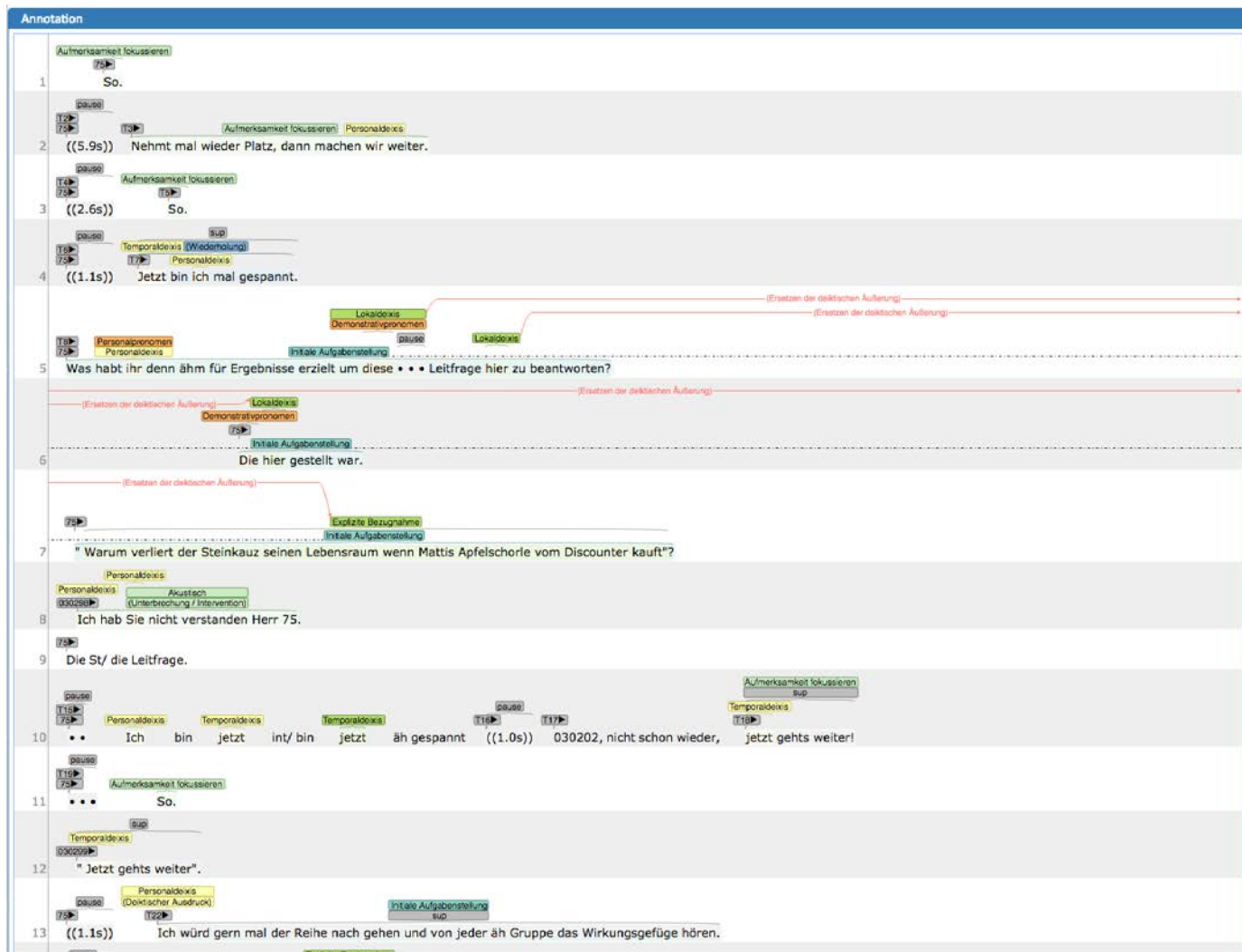
Speaker Details

Name: David Beckham
Birth Location: London
Birth Date: 1975
Nationality: English
Residence: Germany
Occupation: Footballer, businessman, model and spokesperson
Language (L1): English (eng)

Speaker metadata

GEFÖRDERT VOM

First annotation results



Details Users Documents Media **Layers** Tagsets Constraints Guidelines CAS Doctor Export

Layers Help

- Aufgabenstellung
- Chunk
- Coreference
- Deiktischer Ausdruck
- Dependency
- Eigene Intervention
- Ersetzen der deiktischen Äußerung**
- Explizite Bezugnahme
- Lemma
- Morphological features
- Named entity
- Orthography Correction
- POS
- Parasprachliche Äußerungen
- Pronomen
- Referenz
- Rückmeldungen an SuS
- Schülerantwort
- SemArg
- SemPred
- Surface form
- TEI Incident
- TEI Play
- TEI Play Segment
- TEI Span 'akz'
- TEI Span 'en'
- TEI Span 'k'
- TEI Span 'sup'
- TEI Span (generic)
- Trouble Source
- Unterbrechung / Intervention
- Verdeutlichung des deiktischen Ausdrucks
- Verdeutlichung des deiktischen Ausdrucks
- Wiederholung

Layer Details Help

Properties Help

Name Ersetzen der deiktischen Äußerung

Description

Enabled

Technical Properties Help

Internal Name webanno.custom.Ersetzenderdeiktischeru
erung

Type relation

Attach to layer Referenz

Behaviors Help

Read-only

Allow stacking

Allow crossing sentence boundaries

Run Javascript action on click

```
alert($PARAM.PID + ' ' + $PARAM.PNAME + ' ' + $PARAM.DOCID + ' ' +  
$PARAM.DOCNAME + ' ' + $PARAM.fileldname);
```

Details Users Documents Media **Layers** Tagsets Constraints Guidelines CAS Doctor Export

Layers Help

- Aufgabenstellung
- Chunk
- Coreference
- Deiktischer Ausdruck
- Dependency
- Eigene Intervention**
- Ersetzen der deiktischen Äußerung
- Explizite Bezugnahme
- Lemma
- Morphological features
- Named entity
- Orthography Correction
- POS
- Parasprachliche Äußerungen
- Pronomen
- Referenz
- Rückmeldungen an SuS
- Schülerantwort
- SemArg
- SemPred
- Surface form
- TEI Incident
- TEI Play
- TEI Play Segment
- TEI Span 'akz'
- TEI Span 'en'
- TEI Span 'k'
- TEI Span 'sup'
- TEI Span (generic)
- Trouble Source
- Unterbrechung / Intervention
- Verdeutlichung des deiktischen Ausdrucks
- Verdeutlichung des deiktischen Ausdrucks
- Wiederholung

Layer Details Help

Properties Help

Name Eigene Intervention

Description Ein SuS bemerkt seinen Fehler oder sein Unverständnis und berichtigt es / führt den Gedanken fort

Enabled

Technical Properties Help

Internal Name webanno.custom.EigeneIntervention

Type span

Attach to layer -NONE-

Behaviors Help

Read-only

Lock to token

Allow multiple tokens

Allow stacking

Allow crossing sentence boundaries

Show span text in tooltip popup

Run Javascript action on click

```
alert($PARAM.PID + ' ' + $PARAM.PNAME + ' ' + $PARAM.DOCID + ' ' +  
$PARAM.DOCNAME + ' ' + $PARAM.fileldname);
```

working with transcripts

- students have to look for a unit of description
 - extent
 - character
- relation to comprehension
- team discussion

steps in using WebAnno

- annotation unit
- consideration of layers, tag sets and tags
- inter annotator agreement

- increased student interest in the field of linguistics (data analyses) through data-driven discussions
- starting points for reflection of teachers' role in classroom communication
- more explicit input for the lecturer on students' understanding of concepts taught in the lecture
- students learned to use tools of DH while focussing on the content of the lecture

- the teaching method can be used in further contexts and/or for other topics
- using the ISO/TEI standard, the WebAnno plugin can be more easily extended to provide support for further transcription conventions

- Demo version (guest/guest):
ltdemos.informatik.uni-hamburg.de/webanno-mm
- Plugin code:
github.com/webanno/webanno-mm
- ISO 24624:2016, ISO/TEI Standard:
ids-mannheim.de/prag/muendlichekorpora/isodin.html