

On the semantic and pragmatic aspects of impersonal pronominal meaning

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1 Introduction

Topic: “impersonal pronominal meaning” = the interpretation of impersonal pronouns and impersonally used personal pronouns in generic sentences

For the majority of the talk, I will:

- neglect the existential and referential readings of impersonal pronouns
- neglect the referential reading of personal pronouns
- treat the use in generic sentences as an isolated phenomenon

Motivation:

- analyses of the meaning of impersonal pronouns and impersonally interpreted personal pronouns have focused on giving a unified account of all readings
- the pragmatic effects were left aside or their complexity was simplified

(cf. Alonso-Ovalle 2000, 2002; Chierchia 1995; Kratzer 1997; Malamud 2006, 2007, 2012)

Data: German impersonal *man* and the impersonal use of first person singular *ich* and second person singular *du*

- (1) a. *Man telefoniert in Deutschland täglich mit seinen Eltern.*
one talks-on-the-phone in Germany daily with one's parents
'In Germany, one talks on the phone with one's parents every day.'
- b. *Ich kann als Lehrer meinen Schülern nicht meine persönliche Ideologie aufzwingen.*
I can as teacher my pupils not my personal ideology force-on
Understood as: 'A teacher can't force his ideology on his pupils.'¹
- c. *Du kannst als Frau doch auch Ansprüche haben, denen nicht jeder Mann gerecht wird.*
you can as woman PRT also standards have that not every man
meets
Understood as: 'A woman can also have standards that not every man meets.'²

Aim: to argue for a specific analysis of impersonal pronominal meaning that assumes interacting meaning components that contribute to different levels of meaning

¹<http://blasphemieblog2.wordpress.com/2011/03/25/fabelwesen-lehrer-wegen-grus-gott-verbots-kritisiert/>

²http://forum.gofeminin.de/forum/couple1/_f47262.couple1-Jmachen-wir-uns-doch-nix-vor.html

2 Central semantic observation

- Minimal pairs of general statements regarding the choice of pronominal form are truth-conditionally equivalent:

- (2) a. *Wenn **ich** als Mannschaft gewinnen will, muss **ich** kämpfen.*
if I as team win want must I fight
b. *Wenn **du** als Mannschaft gewinnen willst, musst **du** kämpfen.*
if you as team win want must you fight
c. *Wenn **man** als Mannschaft gewinnen will, muss **man** kämpfen.*
if one as team win want must one fight
All three: 'If a team wants to win, it has to fight.'

- It is possible to switch between pronominal forms to talk about the same generality:

- (3) *Wenn **ich als Händler** Schrott kaufe, dann muss ich mit so etwas rechnen. [...] Wenn **du als Händler** von jemandem ein Fahrzeug kaufst und dann reckon if you as trader from someone a vehicle buy and then weiter verkaufen möchtest, dann musst du den Wagen vorher überprüfen lassen.*
further sell want then must you the car before check let
'If a trader buys trash, he has to expect a situation like this.[...] If a trader buys a vehicle from someone, and he wants to resell it, he has to let it get checked beforehand.'³

Core observation:

Impersonally used *ich* and *du* are truth-conditionally equivalent with *man*.

3 Pragmatic effects

Identification of the pragmatic effects:

compare generic sentences containing impersonal pronouns and impersonally interpreted personal pronouns with each other and with ordinary generic sentences

- 1) Generic sentences containing impersonal pronouns vs. ordinary generics:

- English *one*:

- (4) a. *One looks back with appreciation to the brilliant teachers.*
b. *People look back with appreciation to brilliant teachers.*

- Moltmann (2010a,b, 2012) on the use of *one*:

- it is strongly tied to the personal experiences of the speaker
- it allows for other individuals to immediately put themselves into the speaker's perspective
- points towards a hard-wired aspect of the meaning of the pronoun that has to be analyzed as speaker-orientation
- “quasi-first-person orientation” of *one*: connection of the use of *one* to actual or simulated subjective experiences of the first person

- German *man*:

- (5) a. ***Man** behält als Student großartige Lehrer in guter Erinnerung.*
one keeps as student brilliant teachers in good memory

³<http://diskussionen.quoka.de/viewtopic.php?t=691>

- b. ***Studenten** behalten großartige Lehrer in guter Erinnerung.*
students keep brilliant teachers in good memory

- Zifonun (2000) on *man*:

- (6) “Especially significant on the pragmatic level is the use of *man* for which generalizability is intended. In this use, it is communicated:
- a. that the generalization that applies to all (relevant) individuals is also applicable to the speaker and
 - b. what the speaker experiences could be experienced in the same way by all other (relevant) individuals, as well.”
(translated from Zifonun 2000:242)

Core observation:

The use of impersonal pronouns is connected to the beliefs and experiences of the speaker — it is conveyed that the speaker’s beliefs and experiences support the validity of the general statement that is expressed.

2) Generic sentences containing impersonally used personal pronouns vs. ordinary generics:

- (7) a. ***Studenten** behalten großartige Lehrer in guter Erinnerung.*
students keep brilliant teachers in good memory
- b. ***Ich** behalte (doch) als Student großartige Lehrer in guter Erinnerung.*
I keep prt as student brilliant teachers in good memory
- c. ***Du** behältst als Student großartige Lehrer in guter Erinnerung.*
you keep as student brilliant teachers in good memory
- All: ‘As a student, one keeps brilliant teachers in good memory.’

Core observation:

The use of impersonally interpreted personal pronouns conveys the same speaker-orientation as the use of impersonal pronouns.

3) Impersonal pronouns vs. impersonally interpreted personal pronouns:

- *Ich* and *du* induce additional effects that are connected to the speaker and the addressee, respectively.

ich: the speaker considers the validity of the general statement uncontroversial
the speaker distances himself from people that do not share his stance towards the statement
the speaker conveys heightened emotional involvement

du: the speaker considers the validity of the general statement uncontroversial
the speaker seeks to create closeness between himself and the addressee
→ Malamud (2006, 2007, 2012) on impersonal *you*: the speaker invites the addressee to empathize with those individuals that the general statement is about

- Generalizations on the preferred contexts of use of *ich* and *du*:

ich: strongly prefers negative contexts (= contexts in which the general statement is violated, or in which its validity is questioned)

du: weakly prefers positive contexts (= contexts in which no violation or questioning occurs or is to be expected)
also occurs in negative contexts (→ additional effects)

- **Illustration:**

Note: Differences in pragmatic effects and preferences on discourse contexts were determined on the basis of a data collection compiled from google searches and additional native speaker judgements on constructed examples.

Context: “How much money does one give as a present at a wedding?” - The initial question is whether 100 Euros is enough. One user argues that it is customary to adjust the amount of money relative to the size and cost of the wedding party held by the bridal couple. Another user takes issue with this claim with the following utterance:

- (8) *Ich find das ist ein total doofes Argument! Ich kann doch als Brautpaar nicht I think this is a totally stupid argument I can part as bridal-couple not von meinen Gästen erwarten, dass sie mir quasi die Feier finanzieren! from my guests expect that they me more-or-less the party finance 'I think this is an absolutely stupid argument! The bridal couple can't expect their guests to more or less pay the party!'*⁴

Context: During an interview, the coach of the German ice hockey national team talks about the frequent and regular occurrence of situations in which weaker teams beat stonger teams in professional sports. He argues that these situations will continue happening, and can not be prevented. He says that in a match, being the stronger team never guarantees a victory, and continues with:

- (9) *Du musst als Mannschaft einfach mehr gewinnen wollen als der Gegner. you must as team simply more win want than the opponent 'As a team your wish to win simply has to be greater than your opponent's.'*⁵

Core observation:

Impersonally interpreted *ich* and *du* induce more pragmatic effects than impersonal *man*. These are connected to the discourse participants to which the pronouns refer in their deictic use. They also place preferences on their contexts of use.

4 Impersonal pronominal meaning in generic sentences

1) **Truth-conditional contribution** of impersonal pronouns and impersonally used personal pronouns in German:

$$(10) \quad \llbracket ich_{imp}/du_{imp}/man \rrbracket^{g,c,w} = x$$

- **Motivation:** Truth-conditional equivalence of *ich*, *du*, and *man*.

This result is expected to hold cross-linguistically whenever truth-conditional equivalence of impersonal pronouns and impersonally interpreted personal pronouns is given.

- The free variable is bound by the generic operator *Gen* (Drewery 1998; Greenberg 2007):

$$(11) \quad \text{Gen } x(F(x); G(x)) := \forall w'[wRw' \rightarrow \forall x[F(x)(w') \& N_{F,G}(x)(w') \rightarrow G(x)(w')]]$$

‘In all relevant circumstances, all relevantly normal *F* individuals are *G*s.’

- **N_{F,G}:** property that filters out the exceptional *F*-individuals with respect to being *G* in all relevant possible worlds

⁴<http://www.urbia.de/archiv/forum/th-2142726/Wieviel-Geld-zur-Hochzeit-schenken.html>

⁵<http://www.netzathleten.de/Sportmagazin/Star-Interviews/Interview-mit-Eishockey-Bundestrainer-Uwe-Krupp-Besser-spielen-als-in-Bern/5761358233643659016/head>

2) Pragmatic effects of *ich*, *du*, and *man* (Zobel 2012):

- are the result of additional, conventionally implicated content (cf. Grice 1975; Potts 2005)
 - CI content is projective, i.e. it is scopeless with respect to logical operators
 - CI content places no constraints on the utterance context
 - the truth of CI content is not entailed by the at-issue content

• Speaker-oriented component (*ich*, *du*, *man*):

- (12) a. $\lambda w. [F(c_S)(w) \rightarrow \text{BELIEVE}_w(c_S, \lambda w. N_{F,G}(c_S)(w))] \ \&$
 $[\neg F(c_S)(w) \rightarrow \text{BELIEVE}_w(c_S, \lambda w. \forall w' \in \text{MaxSim}_{F(c_S),w}[N_{F,G}(c_S)(w')])]$
 ‘If the speaker is an F , he believes that he is a relevantly normal F , and if he is not an F , he believes that if he were an F , he would be a relevantly normal F .’

Scenario: A read an advertisement for a new exhibition on Klimt featuring “The Kiss” in a prominent position across from the entrance. A wants to see the exhibition, but has not yet been to the gallery.

- (13) A: *Man kann als Besucher das Bild vom Eingang aus sehen. #Aber ich*
 one can as visitor the picture from-the entrance of see but I
glaube nicht, dass das für mich gilt, wenn ich da hin gehe.
 believe not that this for me be-valid if I there go
 A: ‘As a visitor, one can see the picture from the entrance. # But I don’t believe that this is the case for me, if I go there.’

• Participant-oriented component (*ich*, *du*):

- (14) $\lambda w. \text{BELIEVE}_w(c_S, \text{all individuals that consider } ?p \text{ should accept that } p) \ \&$
 ‘The speaker believes that all individuals that consider the content of the generalization should accept it as valid’ AND
 a. ***ich*:**
 $\lambda w. \text{BELIEVE}_w(c_S, \text{there is a specific individual that does not accept that } p)$
 ‘The speaker believes that there is a specific individual who does not accept the generalization as valid’
 b. ***du*:**
 $\text{INVITE}(c_S, c_A, \text{consider } ?p)$
 ‘The speaker invites the addressee to consider the content of the generalization’

- ***ich* and *du*:** considering the statement uncontroversial

Scenario: A and B discuss obligations of farmers. B states that she knows a farmer who never milks his cows.

- (15) A: *Ich muss doch als Bauer meine Kühe melken! #Aber eigentlich können*
 I must PRT as farmer my cows milk but actually can
Bauern meinetwegen machen, was sie wollen.
 farmers for-all-I-care do what they want
 A: ‘As a farmer, one has to milk one’s cows (and I support this fully)! # But for all I care, farmers can do what they want.’

- **ich:** Distancing effect of conveying (the assumption of) a violation of the general statement
Scenario: A and B discuss obligations of farmers. B states that she knows a farmer who never milks his cows.

(16) A: *Ich muss doch als Bauer meine Kühe melken! #Ich bin mir sicher, dass*
 I must PRT as farmer my cows milk I am me sure that
dieser Bauer da mit mir einer Meinung ist.
 this farmer about-that with me the-same opinion is
 A: ‘As a farmer, one has to milk one’s cows (in contrast to the actions of that farmer)! #I am sure that that farmer agrees with me.’

- **du:** Creating camaraderie by conveying the presumed acceptance of the general statement (uncontroversiality and invitation)

Scenario: A tells B about the essential qualities that a childcare specialist is expected to have.

(17) A: *Als Erzieherin musst du gut mit Kindern umgehen können.*
 as childcare-specialist must you good with children interact can
#Aber mir ist eh klar, dass du da anderer Meinung sein wirst.
 but me is PRT clear that you there different opinion be will
 A: ‘As a childcare specialist, you (imp.) have to interact well with children. #But I am certain that you (add.) will have a different opinion about that.’

• **Checking for CI properties** of the proposed components (cf. Roberts to appear):

- **Projective behavior:** the components do not interact with sentential negation, and can not be targeted by simple affirmation or denial

(18) a. *Ich kann als Spieler nicht einfach nach Minneapolis wechseln!*
 I can as player not simply to Minneapolis transfer
 ‘A player can not simply transfer to Minneapolis!’⁶
 b. *Wenn ich als Gewerbetreibender etwas kaufe, kann ich Vorsteuer*
 if I as trader something buy can I prepaid-tax
geltend machen.
 lay-a-claim
 ‘If a trader buys something, he can lay a claim on prepaid tax.’⁷

(19) a. A: *Ich muss halt als “Allgemeinheit” bereit sein, mir meine Infrastruktur*
 I must PRT as community willing be me my infrastructure
auch etwas kosten zu lassen.
 also something expense to let
 A: ‘A community has to be willing to pay a certain price for its infrastructure.’⁸
 b. B: *Ja, das stimmt. / Nein, das stimmt nicht.*
 yes that is-right / no that is-right not
 B: ‘Yes, that’s true. / No, that’s not true.’

- **No restrictions on context:** the components may convey new information, and may turn out to be false without an effect on the truth of the general statement

(20) a. A: *Wenn ich als Mannschaft solche Spiele abliefere, dann zum Boss*
 if I as team such matches deliver then to-the boss
gehen und mich ausheulen ist auch kein Niveau.
 go and me cry-one’s-eyes-out is also no standard

⁶Adapted from <http://www.footballforum.de/community/brett-farve-der-naechste-versuch-t4671-s360.html>

⁷<http://de.answers.yahoo.com/question/index?qid=20091023064023AADC6nz>

⁸<http://derstandard.at/plink/1226067142914?sap=2&pid=11193953#pid11193953>

- A: ‘If a team plays like that, it is low standard to go running to the boss afterwards to cry their eyes out.’
- b. B: *Du würdest das also nicht machen.*
 you would that PRT not do
 B: ‘You wouldn’t do that, I gather.’
- c. B’: *Dich scheint das ja sehr aufzuregen!*
 you seem that PRT very upset
 B’: ‘You seem very upset about that!’

- **No local entailment:** the content is not part of the at-issue content (as e.g. the presupposed complement of factive verbs)

• **In sum:**

- **Truth-conditional content:** free variable which is bound by *Gen*
- **Conventionally implicated content:**

<i>ich</i>	<i>du</i>	<i>man</i>
self-application of the generalization		
expectation of acceptance		
violation	invitation	

- Together with the **principle of truthful propositions**, speaker-oriented component conveys the intuitions of Moltmann and Zifonun (see Appendix A)

(21) **Principle of truthful propositions:**

“A speaker who expresses a proposition is taken to believe it unless this is prevented by explicit marking (e.g. rising intonation, particles, etc.)”
 (Kaufmann 2012:152f)

5 Towards the big picture

What about the other uses of personal and impersonal pronouns?

	referential use		impersonal use		existential use
impersonal pronouns	(✓)	$\xleftarrow{?}$	default	$\xrightarrow{\exists}$	✓
personal pronouns	default	$\xrightarrow{?}$	✓	-	×

Table 1: Personal and impersonal pronouns and their readings

1) Further observations:

- **Impersonal pronouns:** The existential use always happens in episodic sentences.
- **Personal and impersonal pronouns:** The impersonal use always happens in generic sentences.
- The referential use differs for personal and impersonal pronouns: for impersonals, the sentence has to be episodic, for personal pronouns may occur in generic sentences (habitual statements) and episodic sentences.
- Pragmatic effects for *man*, *ich*, and *du* only arise in the impersonal use
 → strong connection to the generic interpretation of these sentences

2) Existential use of German *man*:

$$(22) \quad \llbracket one/man \rrbracket^{g,c,w} = x$$

- *man* does not introduce an existential quantifier
- existential quantification is contributed by existential closure of the free variable x
- **Motivation:**
 - the generic reading is the predominant reading (Zifonun 2000)
 - *man* behaves differently from the truly existential indefinite pronoun *jemand* (Engl. ‘someone’) (Zifonun 2000; Cabredo-Hofherr 2008)
 - the existential reading occurs only in episodic sentences Chierchia (1995); Cabredo-Hofherr (2004)
- unified account for the impersonal and existential readings

With respect to the meaning of the referential use, more research is needed. As a starting point: Kratzer (1997).

3) Referential use of German *ich* and *du*:

- keep a Kaplanian direct referential reading (Kaplan 1978 [1989]; Kratzer 2009)

$$(23) \quad \begin{array}{ll} \text{a.} & \llbracket ich_{ref} \rrbracket^{g,c,w} = c_S \\ \text{b.} & \llbracket du_{ref} \rrbracket^{g,c,w} = c_A \end{array}$$

- connection between referential and impersonal uses?

– **Possibility 1:** Pragmatic shifting process

$$(24) \quad \begin{array}{l} \text{Recanati (2010):} \\ \llbracket \alpha \beta \rrbracket^{g,w,c} = f(\mathcal{G}^1(\llbracket \alpha \rrbracket^{g,w,c}), \mathcal{G}^2(\llbracket \beta \rrbracket^{g,w,c})) \\ f \dots \text{semantic composition function} \\ \mathcal{G}^1, \mathcal{G}^2 \dots \text{pragmatic processes} \end{array}$$

$$(25) \quad \begin{array}{l} \text{Potts (2005):} \\ \text{IMP} \rightsquigarrow \lambda x. \lambda \phi. \text{comment}(x)(\phi) : \langle \langle e^a \rangle, \langle t^a, t^c \rangle \rangle \end{array}$$

– **Possibility 2:** Lexical ambiguity — Homonymy vs. Polysemy

- arguments may be given for and against both possibilities; at the moment, I tend towards a polysemy account for personal pronouns

References

- Alonso-Ovalle, Luis. 2000. Is the ‘Arbitrary Interpretation’ a Semantic Epiphenomenon? In *Issues in Semantics and its Interface, UMass working papers in linguistics 21*, ed. Kiyomi Kusumoto and Elisabeth Villalta, 155–183. GLSA.
- Alonso-Ovalle, Luis. 2002. Arbitrary Pronouns Are Not That Indefinite. In *Romance Languages and Linguistic Theory 2000*, ed. Claire Beyssade, Reineke Bok-Bennema, Frank Drijkoningen, and Paola Monachesi. John Benjamins.
- Cabredo-Hofherr, Patricia. 2004. Impersonal pronouns in Somali, German and French. Handout, Syntax of the World’s Languages 1, Leipzig.

- Cabredo-Hofherr, Patricia. 2008. Les pronoms impersonnels humains - syntaxe et interprétation. *Modèles linguistiques tome XXIX-1* 57:35–56.
- Chierchia, Gennaro. 1995. The Variability of Impersonal Subjects. In *Quantification in Natural Languages*, ed. Emmon Bach, Eloise Jelinek, Angelika Kratzer, and Barbara H. Partee, 107–143. Kluwer.
- Drewery, Alice. 1998. *Generics, Laws and Context*. Doctoral Dissertation, University of Edinburgh.
- Greenberg, Yael. 2007. Exceptions to generics: Where Vagueness, Context Dependence and Modality Interact. *Journal of Semantics* 24:131–167.
- Grice, Paul. 1975. Logic and conversation. In *Syntax and semantics 3: Pragmatics*, ed. P. Cole and J. Morgan, 41–58. New York Academic Press.
- Kaplan, David. 1978 [1989]. Demonstratives. In *Themes from Kaplan*, ed. Almog, Perry, and Wettstein. Oxford University Press.
- Kaufmann, Magdalena. 2012. *Interpreting Imperatives*. Springer.
- Kratzer, Angelika. 1997. German impersonal pronouns and logophoricity. Presentation at Sinn und Bedeutung II. Berlin, Germany.
- Kratzer, Angelika. 2009. Making a Pronoun: Fake Indexicals as Windows into the Properties of Pronouns. *Linguistic Inquiry* 40:187–237.
- Malamud, Sophia. 2007. Impersonal indexicals: you, man and si. Draft.
- Malamud, Sophia A. 2006. *Semantics and pragmatics of arbitrariness*. Doctoral Dissertation, University of Pennsylvania.
- Malamud, Sophia A. 2012. Impersonal indexicals: *one, you, man, and du*. *Journal of Comparative Germanic Linguistics* (Online First):1–48.
- Moltmann, Friederike. 2010a. Generalising Detached Self-Reference and the Semantics of Generic One. *Mind and Language* 25:440–473.
- Moltmann, Friederike. 2010b. Relative Truth and the First Person. *Philosophical Studies* 150:187–220.
- Moltmann, Friederike. 2012. Two Kinds of First-Person-Oriented Content. *Synthese, special issue edited by Philippe de Brabanter and Mikhail Kissine* 184:157–177.
- Potts, Christopher. 2005. *The Logic of Conventional Implicatures*. Oxford University Press.
- Recanati, Francois. 2010. *Truth-conditional Pragmatics*. Oxford University Press.
- Roberts, Craige. to appear. only: A case study in projective meaning. In *Formal Semantics and Pragmatics: Discourse, Context, and Models, The Baltic International Yearbook of Cognition, Logic and Communication*, ed. Partee, Glanzberg, and Skilters.
- Zifonun, Gisela. 2000. “*Man lebt nur einmal*.” Morphosyntax und Semantik des Pronomens *man*. *Deutsche Sprache* 3/00:232–253.
- Zobel, Sarah. 2012. *Impersonally Interpreted Personal Pronouns*. Doctoral Dissertation, Universität Göttingen.

Appendix A

Assuming the speaker-oriented component and the principle of truthful propositions, ...

(26) Principle of truthful propositions:

- a. “A speaker who expresses a proposition is taken to believe it unless this is prevented by explicit marking (e.g. rising intonation, particles, etc.)”
(Kaufmann 2012:152f)
- b. Specifically for generic sentences:

$$\lambda w. \text{BELIEVE}_w(c_S, \lambda w. \forall w' [wRw' \rightarrow \forall x [F(x)(w') \& N_{F,G}(x)(w') \rightarrow G(x)(w')]])$$

...it can be shown that the speaker believes that the general statement he expresses applies, or would apply to himself (= observations in Moltmann (2010b) and Zifonun (2000)).

Proof:

1) First case: the speaker is an F in the world of evaluation w , i.e. $F(c_S)(w)$. By this assumption and the speaker-oriented component,

$$(27) \quad \forall w' \in \text{Dox}_{c_S, w} [N_{F, G}(w')(\langle c_S, w' \rangle)]$$

By (26-a), the set of doxastically accessible worlds is a subset of the worlds in which the generic sentence holds. This means that

$$(28) \quad \forall w' \in \text{Dox}_{c_S, w} \forall w'' [w'' \sim_{F, G} w' \rightarrow \forall x [F(x)(w'') \& N_{F, G}(w'')(\langle x, w'' \rangle) \rightarrow G(x)(w'')]]$$

Since $\sim_{F, G}$ is reflexive,

$$(29) \quad \forall w' \in \text{Dox}_{c_S, w} \forall x [F(x)(w') \& N_{F, G}(w')(\langle x, w' \rangle) \rightarrow G(x)(w')]$$

From the starting assumption, (27), and (29), it follows that

$$(30) \quad \forall w' \in \text{Dox}_{c_S, w} [G(c_S)(w')].$$

2) Second case: the speaker is not an F in the world of evaluation w , i.e. $\neg F(c_S)(w)$. By this assumption and the speaker-oriented component,

$$(31) \quad \forall w' \in \text{Dox}_{c_S, w} \forall w'' \in \text{MaxSim}_{F(c_S), w'} [N_{F, G}(w'')(\langle c_S, w'' \rangle)]$$

By (26-a), the set of doxastically accessible worlds is a subset of the worlds in which the generic sentence holds. This means that

$$(32) \quad \forall w' \in \text{Dox}_{c_S, w} \forall w'' [w' \sim_{F, G} w'' \rightarrow \forall x [F(x)(w'') \& N_{F, G}(w'')(\langle x, w'' \rangle) \rightarrow G(x)(w'')]]$$

The maximally similar worlds to the doxastically accessible worlds with respect to c_S being F are those worlds w'' in which, everything else being equal, the speaker c_S is assumed to be an F . Since the speaker's being an F in a world w' has no influence on the rules and generalizations that hold in that world regarding F s, it can be assumed that the maximally similar worlds to the doxastically accessible worlds agree on these rules. This means that the maximally similar worlds are also generically accessible from any $w' \in \text{Dox}_{c_S, w}$.

$$(33) \quad \forall w' \in \text{Dox}_{c_S, w} \forall w'' \in \text{MaxSim}_{F(c_S), w'} [w' \sim_{F, G} w'']$$

By the reflexivity of $\sim_{F, G}$,

$$(34) \quad \forall w' \in \text{Dox}_{c_S, w} \forall w'' \in \text{MaxSim}_{F(c_S), w'} \forall x [F(x)(w'') \& N_{F, G}(w'')(\langle x, w'' \rangle) \rightarrow G(x)(w'')]$$

From (31), and (34), it follows that

$$(35) \quad \forall w' \in \text{Dox}_{c_S, w} \forall w'' \in \text{MaxSim}_{F(c_S), w'} [G(c_S)(w'')].$$

Appendix B

Three example sentences:

$$(36) \quad \begin{array}{l} \text{Man ist nur einmal jung.} \\ \text{one is only once young} \\ \text{'One is young only once.'} \end{array}$$

$$(37) \quad \begin{array}{l} \text{a. } \llbracket (36) \rrbracket^{g, w, c} = \\ \quad \forall w' [w \sim_{\text{animate-individual, be-young-only-once}} w' \rightarrow \forall x [\text{animate-individual}(x)(w') \& \\ \quad \quad N_{\text{animate-individual, be-young-only-once}}(\langle x, w' \rangle)(w') \rightarrow \text{be-young-only-once}(x)(w')]] \\ \text{b. Speaker-orientation:} \end{array}$$

$$\lambda w. \text{BELIEVE}_w(c_S, \lambda w. N_{\text{animate-individual, be-young-only-once}}(w)(\langle c_S, w \rangle)))$$

- (38) *Ich muss als Mannschaft motiviert auf den Platz gehen.*
 I must as team motivated on the field go
 ‘A team has to enter the field motivated.’

- (39) a. $\llbracket (38) \rrbracket^{g,w,c} =$
 $\forall w' [w \sim_{\text{team}, \Box \text{enter-field-motivated}} w' \rightarrow$
 $\forall x [\text{team}(x)(w') \& N_{\text{team}, \Box \text{enter-field-motivated}}(\langle x, w' \rangle)(w') \rightarrow$
 $\forall w'' \in O(\mathbf{f}, \mathbf{g}, w') [\text{enter-field-motivated}(x)(w'')]]]$
 b. Speaker-orientation:
 $\lambda w. \text{BELIEVE}_w(c_S, \lambda w. \forall w' \in$
 $\text{MaxSim}_{\text{team}(c_S), w} [N_{\text{team}, \Box \text{enter-field-motivated}}(w')(\langle c_S, w \rangle)])$
 c. Participant-orientation:
 $\lambda w. \text{BELIEVE}_w(c_S, \text{all individuals that consider } ?p \text{ should accept that } p \&$
 $\text{there is an individual that does not accept that } p)$
 where p is the at-issue content of (38)

- (40) *Du musst als Mannschaft auf alles vorbereitet sein.*
 you must as team for everything prepared be
 ‘A team has to be prepared for everything.’⁹

- (41) a. $\llbracket (40) \rrbracket^{g,w,c} =$
 $\forall w' [w \sim_{\text{team}, \Box \text{be-prepared-for-everything}} w' \rightarrow$
 $\forall x [\text{team}(x)(w') \& N_{\text{team}, \Box \text{be-prepared-for-everything}}(\langle x, w' \rangle)(w') \rightarrow$
 $\forall w'' \in O(\mathbf{f}, \mathbf{g}, w') [\text{be-prepared-for-everything}(x)(w'')]]]$
 b. Speaker-orientation:
 $\lambda w. \text{BELIEVE}_w(c_S, \lambda w. \forall w' \in$
 $\text{MaxSim}_{\text{team}(c_S), w} [N_{\text{team}, \Box \text{be-prepared-for-everything}}(w')(\langle c_S, w \rangle)])$
 c. Participant-orientation:
 $\lambda w. \text{BELIEVE}_w(c_S, \text{all individuals that consider } ?p \text{ should accept that } p) \&$
 $\text{INVITE}(c_S, c_A, \text{consider } ?p)$
 where p is the at-issue content of (40)

⁹http://www.sport1.de/de/fussball/fussball.bundesliga/artikel_275528.html