

# Free Choice of the *irgend* kind: Not as wide as you might think.

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## 1 *irgend*-indefinites: Some (well-known) impressions

- When **irgend**-indefinites occur unembedded, they convey that the speaker is uncertain about, or does not care (to identify) a witness for the existential claim:<sup>1</sup>

(1) Irgendjemand hat angerufen.  
**IRGEND-one has called.**  
*Someone has called and I do not know (care to say) who called.*

- When embedded under a modal, **irgend**-indefinites give rise to a ‘free-choice effect’:

(2) Maria musste irgendeinen Arzt heiraten.  
**Maria had to marry IRGEND-one M.D.**  
*There was an M.D. that Maria had to marry, I do not know or care to say which one.*  
OR:  
*Maria had to marry an M.D., any M.D. was a permitted option.*

- **irgend**-indefinites are ‘stubbornly existential’ (Kratzer and Shimoyama 2002): They cannot be ‘unselectively bound’, i.e. (3) does not have a generic reading, and (4) cannot mean that most swedes are tall.

(3) Irgendein Schwede ist hochgewachsen.  
**IRGEND-one Swede is tall.**

(4) ??Irgendein Schwede is meistens hochgewachsen.  
**IRGEND-one swede is usually tall.**

### Plan for today

**Section 2** briefly discusses some accounts of the data given above, all of which try to derive the implications **irgend**- induces as *implicatures*, and points out their shortcomings.

**Section 3** takes a closer look at the **irgend**-data, demonstrating that some claims made about them are misleading, and adding some fresh observations.

**Section 4** sketches an account of **irgend**-indefinites in a dynamic update semantics.

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<sup>1</sup>Throughout, I do not give word-by-word glosses. This is in the interest of clarity. Contact me for a version with glosses.

## 2 *irgend-* and implicatures: Some recent accounts

### 2.1 Kratzer and Shimoyama (2002)

- Assumption: *irgend-* maximally widens the domain of an existential quantifier (cf. Kadmon and Landman (1993) for *any*).
- This triggers **implicatures**, accounting for the free-choice effect ('any M.D. was a permitted option')
- In order to account for the ignorance/indifference implicatons, K&S assume a (otherwise unmotivated) covert 'assertion operator'.
- But: The implicature-computation they outline is problematic in a number of ways. Most seriously, a completely parallel procedure applies to plain indefinites just as well, so it is unclear how these implicatures make the difference between *irgend-*indefinites and plain ones.<sup>2</sup>

### 2.2 Aloni & van Rooij (2007)

- A&vR give an explicit formal account of the implications of *irgend-*indefinites ('existential FCIs') and *any*-like indefinites ('universal FCIs') in terms of a Schulz (2003)-style minimal models analysis
- The implications are treated as **quantity implicatures**.
- It is (again) unclear how this account avoids generate identical predictions for **plain** indefinites
- Their account of the difference between existential and universal FCIs relies on the idea that these items can specify (or at least modify) the alternative sets against which quantity implicatures are calculated.
- Presumably, then, one could account for the difference between *irgend-* and plain indefinites by having them invoke distinct alternative sets
- But that raises a conceptual problem: If conversational implicatures are, as it were, calculated 'post-grammatically', how can the conventional meaning of FCIs specify sets used in their computation?

### 2.3 Chierchia (2004), Fox (2007), Chierchia, Fox and Spector (2008) ('the localists')

- Given the conceptual problem for A&vR's solution, it may seem tempting to simply assume that (quantity) implicatures are, after all, not Gricean in nature, but are part of grammar.
- In one way or another, this move has been made by Chierchia, Fox and Chierchia et al. (among others).
- But this move seems overkill if motivated by the existence of FCIs alone: The more natural conclusion is that their meanings are not (quantity) implicatures after all.
- Other motivations for making this move have been largely shown to be only apparent (e.g. Sauerland (2004), Greenhall (2008)).
- And various versions of the localist proposal have been argued to make highly problematic predictions (e.g. Geurts (2009)).
- This should worry us enough to see whether there is not a more conservative way to account for the behavior of (existential) FCIs.

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<sup>2</sup>The reason for this is related to the fact that, as Aloni & van Rooij (2007) observe, K&S solution in terms of domain-widening is entirely independent from their use of a 'Hamblin'-semantics for indefinites, contrary to what K&S claim.

### 3 A closer look at *irgend-*

#### 3.1 A 'link with modality'?

"The connection with modality provides the key to an understanding of the free choice effect. [...] There is currently no compositional account of the link between free choice indefinites and modals, nor an explanation why there should be such a link."

(Kratzer and Shimoyama 2002)

- But how tight is the 'link with modality', really?
- Quantifiers can license **irgend-** without any modal implications:
  - (5) Jedes Mädchen hat irgendeinen Jungen eingeladen.  
**Every girl invited IRGEND-one boy.**  
*There was one boy such that every girl invited him, but I do not know or care to say which one.*  
*OR:*  
*Every girl invited a boy, different girls invited distinct boys.*
- So can **when**-conditionals:
  - (6) Wenn Susanne etwas vom Abendessen übrig hat, gibt sie es irgendeinem Nachbarn.  
**When(ever) Susanne has leftovers from dinner, she gives them to IRGEND-one neighbor.**  
*There is one neighbor, I do not know or care to say which, such that when Susanne has leftovers from dinner, she gives them to him*  
*OR:*  
*Whenever Susanne has leftovers, she gives some to a neighbor, but not always the same one.*
- And adverbs of quantification:
  - (7) Normalerweise schenkt Susanne ihre Bilder irgendeinem Verwandten.  
**Normally, Susanne gives her paintings to IRGEND-one relative.**  
*There is a relative, I don't know or care to say which, such that Susanne normally gives him her paintings.*  
*OR:*  
*Normally, Susanne gives her paintings to a relative, she does not always give it to the same one.*

#### Upshot

- There does not seem to be a 'link with modality' per se, but rather a 'link with quantificational operators'
- In particular, if an **irgend-**indefinite occurs embedded under a quantificational operator, it indicates that the witness(es) for the existential claim are not the same with respect to all members of the domain of the operator.

### 3.2 The scopes of *irgend-*

- K&S: “[**irgendein**] doesn’t seem to have exceptional scope properties”
- Kratzer (2005): ‘[...] the wide-scope reading, which is likely to come about via standard (island obeying!) scope shift.’
- But that is not true, cf. K&S example (their (22)):
  - (8) Der Lehrer hat gefragt, ob Hans irgendein Buch gelesen hat.  
The teacher asked whether Hans read IRGEND-one book.  
(iii)\***irgendein** scopes out of the ob-clause.
- But (8) has a wide-scope (‘ignorance or indifference’) reading!
- This version becomes the preferred one if we change the example slightly:
  - (9) Der Lehrer hat gefragt, ob Hans irgendein kompliziertes Theorem bewiesen hat.  
**The teacher asked whether Hans proved IRGEND-one complicated theorem.**  
*The teacher asked whether there is some complicated theorem (or other) that Hans proved.*  
OR:  
*There is some complicated theorem, I do not know/remember/care to say which one, such that the teacher asked whether Hans proved it.*

#### Upshot:

**irgend-**indefinites do not seem to respect scope islands any more than regular indefinites do.

### 3.3 How wide is ‘maximal’ domain-widening?

- K&S claim that **irgend-** induces ‘maximal’ domain widening.
- Something of the kind **does** seem adequate for (2) above, where **irgend-** is embedded under a deontic modal, and we have the impression that **any** doctor should be a ‘live deontic possibility’.
- But the same does not seem to be true for epistemic modals:
  - (10) Peter muss in irgendeinem Raum in diesem Haus sein.  
**Peter must be in IRGEND-one room in this house.**  
‘Peter must be in some room or other in this house.’
- (10) does not require in any way, shape, or form that all of the rooms in the house are a ‘live epistemic option’.
- All that seems to be required for (10) to be adequate is that there is *more than one* live epistemic possibility.
- Alonso-Ovalle and Menéndez-Benito (forthcoming) cite the Spanish equivalent of (10) (with **algún**) as evidence that **algún** is not a ‘free-choice indefinite’ (i.e. not of the **irgend-**kind).
- This claim has to be reevaluated: **irgend-** does behave like **algún** in this sentence.

- But then, it seems that **irgend-** semantically requires something much weaker than ‘maximal’ domain-widening, and the stronger perceived implication under deontic modals possibly results from pragmatic strengthening of some kind.
- Open issue: Do we get an ‘any P is fine’ implication under deontic possibility modals?

(11) Du darfst irgendeinen Arzt heiraten.  
**You may marry IRGEND-one M. D.**  
*There is an M. D., I do not know or care to say which one, that you may marry.*  
 ?? OR:  
 ?? *You may marry an M. D., any M. D. is a permitted option.*

- Clearly, with epistemic possibility modals, there is again no requirement that ‘every P is a live option’:

(12) Peter könnte in irgendeinem Raum in diesem Haus sein.  
**Peter could be in IRGEND-one room in this house.**  
*Peter could be in some room or other in this house.*

- This sharply contrasts with the behavior of **any**<sup>3</sup>:

(13) Peter could be in any room of this house.

- There is also no ‘any P is a live option’ requirement in unembedded uses: (1) does not convey that the speaker has *no* way of narrowing down the set of possible callers.

**Upshot:**

- **irgend-** does *not*, in general, contribute ‘maximal’ domain widening, except perhaps under deontic necessity modals.
- Rather, in many contexts, it seems to contribute something of a ‘variation condition’ (‘there is more than one possibility’).

### 3.4 The nature of *irgend*’s implication

- The implications contributed by **irgend** clearly are not part of the asserted content of an utterance.
- K&S suggest that it is a conversational implicature.
- They support this supposition with two arguments:

1. They claim that the free-choice implication is *cancelable* (their example (11)):

(14) Du musst irgendeinen Arzt heiraten, und das darf niemand anders sein als Dr. Heintz.  
**You must marry IRGEND-one M. D., and that cannot be anyone other than Dr. Heintz.**

But: (14) is acceptable only if the two modals refer to distinct modal bases (e.g. you must marry IRGEND-one doctor according to what you parents want, and according to what I want, it better be Dr. Heintz.)<sup>4</sup>

<sup>3</sup>The English version with **any** also strongly suggests that it is likely that John is in *some* room of the house, while the German **irgend-**version just mentions this as a possibility.

<sup>4</sup>Condoravdi (unpublished) makes the same point, citing p.c. with Stefan Kaufmann.

2. The free-choice implication disappears in downward-entailing contexts:

- (15) Niemand musste irgendjemanden heiraten  
**No-one hat to marry IRGEND-one.**  
*No-one had to marry anyone.*  
*NOT: No-one had to marry someone, but had the free option to choose whom.*

But that only shows that the free-choice implication is not part of the asserted context, not that it is an implicature.

- In some ways, the implication contributed by **irgend-** behaves like a presupposition, but only if embedded under a quantificational operator: e.g. it can be filtered by a counterfactual in the familiar way:

- (16) Hans hat irgendein Buch gekauft. / Ich weiß, dass Hans irgendein Buch gekauft hat.  
**(I know that) Hans has bought IRGENDone book.**  
*(I know that) Hans bought a book, but I do not know (care to say) which one.*

- (17) Wenn Hans nicht wüsste, dass ich *Barriers* gekauft habe, so wüsste er doch, dass ich irgendein Buch gekauft habe.  
**If Hans did not know that I bought *Barriers*, he still would know that I bought IRGEND-one book.**

- (18) Wenn ich nicht wüsste, dass Hans *Barriers* gekauft hat, so hätte er doch #irgendein Buch gekauft.  
**If I did not know that Hans bought *Barriers*, he still would have bought #IRGEND-one book.**

- This suggests that the ignorance-implication of unembedded **irgend** and that of **irgend-** under epistemic modals and attitude verbs have different statuses: The latter behave (somewhat) presupposition-like, the former do not.

- We also find something very much like presupposition-denial:

- (19) Hans glaubt NICHT dass ich mit irgendWEM rumgeknutscht habe: Er denkt, dass es Paul war.  
**Hans does not believe that I made out with IRGEND-ONE, he thinks it was Paul.**

**Upshot:**

- The arguments for assuming that the (free-choice) implications are generally implicatures are weak.
- There is evidence that the implications of **irgend**-indefinites that are embedded under a quantificational operator have a different status from those that are not.
- In particular, embedded implications under embedding behave (somewhat) presupposition-like, unembedded ones do not.

## 4 Free Choice by Postsupposition: A dynamic semantics for *irgend-*

### Descriptive Summary:

- If embedded under a quantificational operator (modal, attitude verb, adverb of quantification, individual quantifier), **irgend** can convey that the witness for the existential statement is not the same with respect to all elements of the domain of the operator.
- If not embedded under such an operator, **irgend** conveys that the speaker is uncertain about, or does not care to identify a witness for his existential statement.
- In the former case, the implication of **irgend** behaves presupposition-like, in the latter it does not.

- The first two clauses in this description sound very much like Farkas's (2002) characterization of English **some/sm**
- An entirely parallel characterization is adequate for English **wh-ever** (see Appendix B for a statement of the characterization and some motivating examples, taken from Lauer (in preparation)).
- Strategy for a unified treatment:

- Assume that **irgend-** uniformly contributes a presupposition-like definedness requirement.
- Model this satisfaction-style in a dynamic semantics à la Groenendijk, Stokhof and Veltman (1996)/Beaver (2001)
- The quantificational operators create *local information states*, which have to satisfy the requirement if **irgend** is embedded.
- If **irgend** is not embedded, the conversational common ground has to satisfy the variation requirement, triggering conversational implicatures of ignorance/indifference

- Unlike a garden-variety presupposition, which in a satisfaction semantics is treated as a condition on the *input* context, we let **irgend-** impose a condition on the *output* context (for now, we only enforce minimal variation):

$$s[\textit{irgend}Q_x[\phi][\psi]]s' :\Leftrightarrow s[Q_x[\phi \wedge \psi]]s' \\ \& \exists i, j \in s' : i(x) \neq j(x)$$

## 4.1 Embedded occurrences

- Example:

(20) Hannah glaubt, dass irgendetwas geklingelt hat.  
**Hannah thinks that IRGEND-person rang the doorbell.**  
 $\Box_h \text{irgend} \exists x [person(x)] [rang(x)]$

The post-supposition is satisfied if there are at least two worlds among Hannah's doxastic alternatives, such that distinct people rang the doorbell in those two possibilities. That is, if Hannah does not know who rang the doorbell.

- This works similarly for deontic modals and attitude verbs.
- For individual quantifiers, the off-the-shelf dynamic treatments will not give the right results.
- But we can modify them so that they do, without destroying the success of the treatment of presuppositions (see Appendix A).
- Upshot: Embedded occurrences will pragmatically presuppose the free-choice implication. I assume that global accommodation can freely apply where this is not already taken for granted.

## 4.2 Unembedded occurrences

- For unembedded occurrences, the post-supposition will ensure that, after the sentence has been added to the conversational common ground, there are still multiple possible witnesses for the existential statement.

- A sentence like (21) will therefore pragmatically presuppose something like (22):

(21) Irgendetwas hat angerufen.  
**Irgend-one has called.**

(22) Learning that someone called will not let you conclude you who it was.

- The following three conditions still are jointly incompatible with the definedness condition of (21):
  1. **Feasibility.** The speaker is able to commit the identity of the person who called to the common ground (i.e. he has knowledge of who called, and there are no other hindrances to share this knowledge, such as disagreement with the audience).
  2. **Relevance.** The identity of the person that called is relevant to the current conversational purposes.
  3. **Cooperativity.** The speaker is willing to provide his audience with any relevant information he possesses.
- Upon hearing an utterance that is appropriate only if the condition in (22) is met, the hearer will have to conclude that (at least) one of the three conditions does not hold.
  - If he concludes that **Feasibility** does not hold, he will often infer ignorance.
  - If he concludes that **Relevance** does not hold, he will infer 'indifference'.
  - He may also conclude that **Cooperativity** does not hold, as is the case if (23) is uttered during a game in which the addressee tries to guess what the speaker is cooking (modeled after an example of von Stechow (2000)).

- (23) Ein Tipp: Ich koche irgendwas Vegetarisches . . . . .  
A hint: I am cooking **IRGEND-thing vegetarian** . . .

#### Summary

- By treating the contribution of **irgend-** as a ‘postsupposition’, we can state a simple, uniform meaning, and have standard notions of formal semantics ((pre)supposition projection and accomodation, conversational implicatures) do the work.
- We can strengthen the definedness condition by requiring more than variation: e.g. we could assume that any member of a contextually supplied set of individuals must be the referent of the **irgend-**indefinite in some possibility of the output state.
- The latter could just give us enough required variation to account for the stronger ‘free-choice’ effect under deontic necessity modals.

## 5 An open issue

- Like **-ever** free relatives, **irgend-**indefinites sometimes appear to express indifference, not of the speaker, but of some other agent:<sup>5</sup>

(24) Hans hat einfach irgendein Werkzeug aus dem Kasten genommen.  
**Hans simply took IRGEND-one tool out of the box.**  
*Hans simply took some tool out of the box, he could have taken any other.*

(25) John just grabbed whatever tool was closest.  
*John just grabbed the tool that was closest. If another tool would have been the closest one, he would have grabbed that.*

- Without **just/einfach**, these readings are quite hard to get, and need special contexts.
- *With just/einfach*, plain indefinites would have a very similar (though perhaps weaker) implication.
- What exactly the conditioning factors for these kinds of readings are, and how they should be captured, is a question that is wide open.

#### We have learned something today:

- **irgend-** is more promiscuous than previously thought. It can combine with a variety of quantificational operators, not just modals.
- **irgend-** does not, generally induce strong domain-widening.
- Postsuppositions are a natural way to state the meanings of free-choice indefinites in a uniform way.
- Postsuppositions are excellent implicature-inducers.

<sup>5</sup>Examples (modified) from Condoravdi (unpublished)

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## Appendix A: Some formal details

**Definition 0.1.** (Possibilities) Given a language  $L$ , a join-semilattice  $\langle D, \sqsubseteq \rangle$  (the **domain**), a set  $W$  of interpretation functions mapping the logical constants of  $L$  into  $\bigcup_{n \in \mathbb{N}} D^n$  and a set of relations  $R \subseteq \wp(W \times W)$ , **the set of possibilities**,  $I$ , is the set of tuples  $\langle r, g, w \rangle$  such that  $r$  is a referent system,  $g$  is function from the range of  $r$  into  $D$  and  $w \in W$ .<sup>6</sup>

The notion of **descendants** and **subsistence** are as in Groenendijk et al. (1996)

**Definition 0.2.** Given a set of worlds  $W$  referent system  $r$  and an assignment function  $g$ , the **information state given  $r$  and  $g$  based on  $W$** ,  $\text{Inf}_{r,g}(W)$  is defined as  $\{r\} \times \{g\} \times W = \{\langle r, g, w \rangle \mid w \in W\}$

**Definition 0.3.** For  $\Psi$  a class of sets closed under union and  $X$  a set, let  $LS(X, \Psi)$ , **the largest subset of  $X$  satisfying  $\Psi$** , be the  $Y$  such that  $Y \subseteq X \ \& \ \Psi(Y)$  & for all  $Z \subseteq X$ : if  $\Phi(Z)$  then  $Z \subseteq Y$ .

**Definition 0.4.** Let  $s, s' \in I$  and  $\phi, \psi$  formulas. Then

$$\begin{aligned}
 s[Rt_1, \dots, t_n]s' & : \iff s' = \{i \in s \mid \langle i(t_1), \dots, i(t_n) \rangle \in i(R)\} \\
 s[t_1 = t_2]s' & : \iff s' = \{i \in s \mid i(t_1) = i(t_2)\} \\
 s[\neg\phi]s' & : \iff s' = \{i \in s \mid i \text{ does not subsist in } s[\phi]\} \\
 s[\phi \wedge \psi]s' & : \iff \exists s'' : s[\phi]s''[\psi]s' \\
 s[\exists_x \phi]s' & : \iff s' = \bigcup_{i \in s} LS(i[x|D], \lambda X. X \neq \emptyset \ \& \ \exists s'' : X[\phi]s'')[\phi] \\
 s[\diamond_a \phi]s' & : \iff s' = \{\langle r, g, w \rangle \in s \mid \text{Inf}_{r,g}(\{v \in W \mid wR_a v\})[\phi] \neq \emptyset\} \\
 s[\partial\phi]s' & : \iff s[\phi]s' \text{ and for all } i \in s : i \text{ subsists in } s'
 \end{aligned}$$

Other logical vocabulary can be defined using the usual abbreviations. The first four clauses are directly taken from Groenendijk et al. (1996) and are fairly standard.  $\partial$  is Beaver's presupposition operator. The definition for  $\diamond$  imports a standard Kanger/Kripke semantics for modality. The definition for the existential quantifier is novel.

The non-modal part of this language (plus the obvious way to introduce generalized quantification) can be shown to be equivalent to the non-modal part of the language defined in Beaver (1994), and thus reproduces its considerable empirical coverage with respect to the interaction of quantification and presupposition.

We can proceed to define definite descriptions, **-ever** free relatives and **irgend**-indefinites:

**Definition 0.5** (Definite descriptions). Let  $\phi, \psi \in L$ , then

$$\iota_x [\phi(x), \psi(x)] := \partial_{\square} [\exists_x [\phi(x) \wedge \forall_y [\phi(y) \rightarrow y \sqsubseteq x]]] \wedge \psi(x)$$

**Definition 0.6** (everFRs).

$$\begin{aligned}
 s[wh - ever [\phi, \psi]]s' & : \iff s[\iota_x [\phi, \psi]]s' \\
 & \quad \& \ \exists i, j \in s' : i(x) \neq j(x)
 \end{aligned}$$

**Definition 0.7** (Irgend- indefinites). Let  $s, s' \in I$ ,  $\phi, \psi \in L, Q$  an existential quantifier, then:

$$\begin{aligned}
 s[\text{irgend}Q_x[\phi][\psi]]s' & : \iff s[Q_x[\phi \wedge \psi]]s' \\
 & \quad \& \ \exists i, j \in s' : i(x) \neq j(x)
 \end{aligned}$$

<sup>6</sup>See Groenendijk et al. (1996) for the definition of referent systems. All that is important here is that  $g \circ r$  is a mapping from variables into the Domain, i.e. an assignment function.

## Appendix B: Some impressions of *-ever* Free relatives

### Descriptive Summary

- If embedded under a quantificational operator (modal, attitude verb, adverb of quantification, individual quantifier), **wh-ever** can convey that the referent of the free relative is not the same with respect to all elements of the domain of the operator.
- If not embedded under such an operator, **wh-ever** conveys that the speaker is uncertain about, or does not care to identify the referent of the free relative.

- Without embedding:

(26) Whatever Arlo is cooking is vegetarian.  
*Implication: Speaker does not know/care to identify what Arlo is cooking.*

- Attitude verbs/Modals:

(27) a. John thinks that whoever won the race will get lucky tonight.  
*Implication: Speaker or John does not know who won the race.*  
b. Joan wants to marry whoever her parents have selected for her.  
*Implication: Speaker does not know who the parents selected,*  
*OR: Joan's marriage-wishes do not depend on the identity of the person her parents have selected.*

- Outscoping modal operator is required if the ignorance-implication is to apply to a third party (*contra* von Fintel (2000)):

(28) Raja was digging into my pork stew, oblivious to what it was. I had to tell him that #whatever he was eating was not halal.  
*Wh-ever cannot predicate its variation requirement on the set of Raja's epistemic possibilities.*

- Non-episodic aspect, adverbs of quantification:

(29) Whatever Peter wrote was (always) violent.  
*Speaker does not know what Peter wrote*  
*OR: Peter wrote a number of things on different occasions, no modal implication*

- Individual quantifiers:

(30) Every test-eater got assigned a dish randomly. Each of them liked whatever he was eating.  
*They did not all get assigned the same thing, no modal implication.*

- Ignorance-implication can be filtered if **wh-ever** is embedded, but not otherwise:

(31) a. If I did not know what Arlo is cooking, I still would know that whatever he is cooking smells delicious.  
b. If I did not know what Arlo is cooking, what#ever he would be/is cooking would still smell delicious.