Degrees of Givenness and their Prosodic Marking

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Summary:
The notion of 'givenness' has been attributed in the literature to different levels. They apply either to the cognitive states of discourse referents relating to the notions of 'identifiability' and 'activation' or to the pragmatic role of a discourse referent in a proposition, expressed by the distinction between 'focus' and 'background'. We are particularly interested in the potentially continuous level of activation and the prosodic correlates of referents displaying different activation states or degrees. Our proposed model is based on production data as well as perception experiments in German. While overall results show a relation between pitch accent type H* and newness, and between lack of accent and fully given referring expressions, the intonational marking of semi-active or 'accessible' information is not as clear-cut. Different types of accessibility (e.g. denoting different semantic relations) demand different accent types as linguistic markers. Moreover, there is evidence that a range of accent types (including deaccentuation) can be mapped onto the gradient scale of activation degrees, with the pitch height on the lexically stressed syllable of the referring expression being the determining factor. Such a mapping suggests a somewhat iconic use of pitch height, which is compatible with Gussenhoven's (2002) 'Effort Code'.

1. Introduction

The present paper proposes a model of the degrees of givenness that can be attributed to referents in spoken discourse and the linguistic categories used in the encoding of these referents. Particular attention is paid to the role of prosody in marking different cognitive states of referents in German (and, to some extent, English). Evidence for the suggested model is gained from empirical data of various kinds. They comprise the analysis of a read corpus of German newspaper texts as well as two perception experiments. We will provide an overview of the results which contributed most to the proposed model and attempt to fit them into a broader picture of givenness relating them to influential previous studies on the interface between information structure and prosody.

We will start out with a short account of which linguistic levels have been subsumed under the notion of 'givenness' in the literature, and how the term will be used in the present paper (section 2), followed by an overview of the relation between a discourse referent's assumed cognitive state or degree of activation in a listener's mind and the formal properties used by a speaker for marking the respective referent (section 3). A more fine-grained discussion, which aims at developing a comprehensive model of givenness degrees and the form of referring expressions, is presented in section 4. It takes into account psychological/psycholinguistic, semantic, pragmatic, morphosyntactic and phonetic/phonological aspects of language description.

2. Levels of givenness

The dimension of 'given' versus 'new' information is a central part in the investigation of information structure. However, the various approaches to givenness in the literature sometimes differ with respect to the level this notion applies to (cf. Prince (1981) for an overview). There are at least three levels for which the terms given and new have been used:

> **Identifiability** of entities, states or events on the basis of the speaker's assumption that the listener has *knowledge* – in the sense of having a mental representation – of these referents or propositions (view of givenness taken e.g. by Clark & Haviland 1977, Prince 1981)
>
> **Degree of Activation** of an entity or proposition assumed by the speaker to be in the listener's *consciousness* at the time of utterance (view of givenness taken e.g. by Chafe 1976, 1994)
>
> **Focus-Background Structure**, i.e. the pragmatic partitioning of an utterance according to which there are elements the speaker chooses to present as *newsworthy* or *not newsworthy*, irrespective of their cognitive state (view of givenness taken e.g. by Halliday 1967, Kuno 1978)

The first two levels, which we regard as constituting 'givenness proper', are non-relational in nature and describe the assumed cognitive state of (the mental representation of) a referent or proposition in the listener's discourse model (identifiability) and in the ongoing discourse (activation). The third level (focus-background structure) corresponds to the pragmatic role of a discourse referent in a proposition. It is relational in nature and applies to the domain of the sentence or utterance (cf. Lambrecht 1994).

While the levels of (non-)identifiability and focus-background structure are concerned with binary distinctions,[1] the activation level should be thought of as a potential continuum. However, such a continuum cannot be adequately expressed in terms of linguistic marking, since the set of linguistic categories available is limited. Taking this mismatch into account, we postulate (following Chafe's (1994) model) three different activation states of discourse referents, namely 'inactive', 'semi-active' and 'active'. For Chafe, who defines givenness in terms of the *activation cost* a speaker has to invest in order to transfer an idea from a previous state into an active state, the three states correspond to three degrees of givenness: if a referent is already active in the listener's consciousness at the time of the utterance, it is g*iven*; if a referent becomes activated from a previously semi-active state, it is *accessible*; and if a referent becomes activated from a previously inactive state, it is *new* (cf. figure 1).

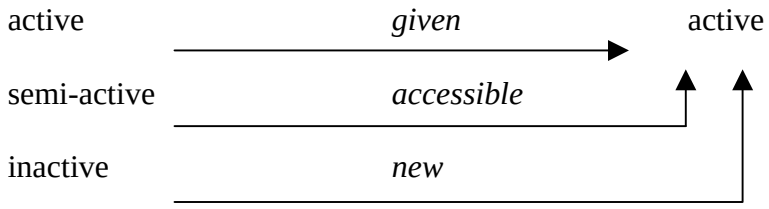


Figure 1: Chafe's (1994 :73) model of givenness degrees

[1] There are, however, different kinds of focus, expressing different degrees of markedness and expressed by differnt degrees of phonological prominence. Contrastive focus, e.g., is generally perceived as particularly prominent. A similar gradience of prominence does not hold for backgrounded elements.

Chafe's cognitive model serves as the basis of the model that will be developed in the course of the present paper.

3. The linguistic marking of givenness

In general, givenness proper (i.e. (non-)identifiability and degrees of activation) is marked by morphosyntactic and prosodic means. Identifiability is, as Lambrecht (1994:87) states, "imperfectly and non-universally matched by the grammatical category of definiteness" – and, consequently, non-identifiability by indefiniteness. Exceptions to this broad rule are, e.g., generic noun phrases, which designate identifiable referents but may be referred to by either definite or indefinite expressions in German and English. The level of consciousness or activation, which applies to identifiable referents only, is marked by two different linguistic means: lexical form and intonation. Discourse-active referring expressions often surface as pronouns, while less active referents are encoded in their full lexical form (cf. e.g. Ariel 1988, Gundel et al. 1993). Furthermore, it is commonly assumed for West Germanic languages like German and English that inactive referents are marked by pitch accents, while active referents are unaccented, or – more precisely – 'deaccented'[2] (cf. Ladd 1996). This basic assumption has recently been confirmed by a cross-linguistic study on the intonational marking of textually given material (Cruttenden, in press). Example (1) is adapted from this study:[3]

(1) A: You need <u>a pair of black SHOES</u> for the wedding.

B: I've already GOT <u>a pair of black shoes</u>.

In (1) A, the head of the noun phrase *a pair of black shoes* receives a pitch accent, since the referent denoted by this expression is newly introduced into the discourse, i.e. inactive in the listener's consciousness. In the answer (1) B, on the other hand, the referent is given (i.e. already active) and thus deaccented. We will see, however, that a simple binary distinction between accentuation and lack thereof is not sufficient for an adequate description of givenness degrees.

Strictly speaking, we cannot predict from a referent's identifiability and activation state alone whether and how a referring expression will be accented. The actual prosodic form depends on the referent's pragmatic role in the given proposition (cf. Lambrecht 1994:323), i.e. whether the referent is part of the focus or the background in the utterance. Since the level of focus and background is determined by the intentions of the speaker – and largely independent of the referent's activation degree – we strive to minimise the influence of this level by assuming broad or all-focus structures for our proposed model. However, there are cases of overlap between the focus-background level and the other two levels which are difficult to avoid: for example, a textually given item, i.e. an item that has been mentioned in the immediate context (such as *a pair of black shoes* in (1) A), is very likely to be part of the background in the subsequent utterance (as the same expression in (1) B).

Moreover, our claims concerning the prosodic marking of discourse referents is restricted to their occurrence as the final argument[4] in an assertive, i.e. low-ending, intonation phrase. This restriction is

[2] The term 'deaccentuation' indicates more clearly a lack of accent in a place where it would have been expected under default conditions.

[3] The referents in question are underlined. Nuclear pitch accents are indicated by capital letters.

[4] Terken & Hirschberg (1994) found that the grammatical function and surface position are relevant cues for a speaker's decision to accent or deaccent a textually given item.

necessary because the type of boundary tone strongly influences the type of nuclear pitch accent. Often, at least in German and English, they have opposite values, resulting in a clearly audible falling or rising movement. Thus, a low boundary tone is very often preceded by a high(er) nuclear accent (disregarding alignment differences), as e.g. in unmarked declarative utterances, while a high or rising boundary tone is often preceded by a low(er) pitch accent, as e.g. in echo questions.

4. A model of intonation and givenness

Figure 2 attempts to give a comprehensive summary of the relevant *givenness states* of discourse referents (new, accessible, given), along a potential continuum of *givenness degrees* (ranging from inactive to active), and their (preferred) linguistic marking in German – leaving aside the types of accent being used for marking the different givenness states (this issue will be discussed in the rest of the paper). Furthermore, we disregard unpredictable variation due to speaker intentions here, which is tantamount to disregarding the level of focus and background.

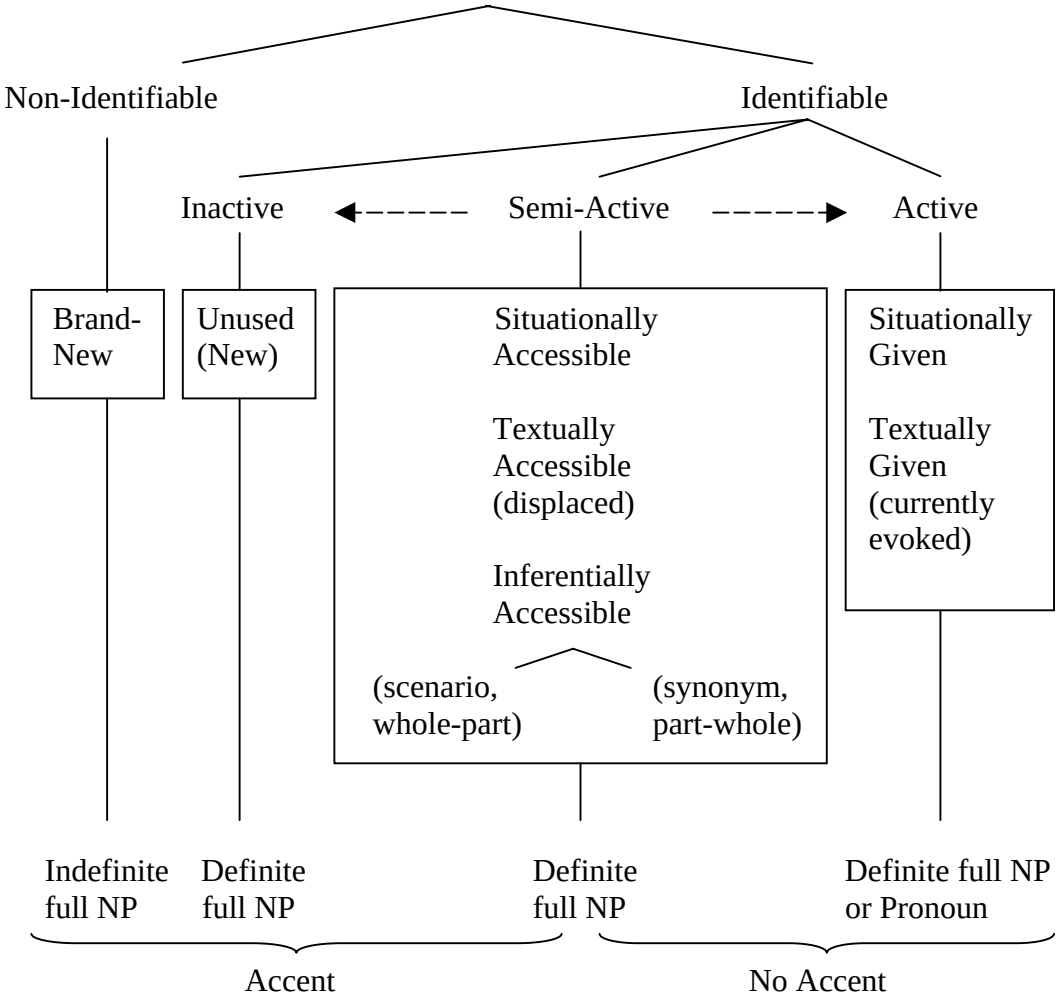


Figure2: Givenness degrees and states of discourse referents and their linguistic marking in German (without accent types)

The model is based on Chafe's (1987, 1994) approach but also incorporates aspects of the models proposed by Allerton (1978), Prince (1981), and Lambrecht (1994), and of our empirical data (discussed in Baumann & Hadelich 2003, Baumann & Grice, in press, and Baumann, to appear).

Allerton's (1978) model is similar to the one proposed here in many respects. For example, he postulates – as we do – four different formal categories, which are defined in morphosyntactic and prosodic terms. He calls these four categories 'new', 'semi-new' (both subsumed under 'new' information in our model), 'semi-given' (equivalent to 'accessible') and 'given'. They are derived from three binary distinctions, which we also claim to be relevant. First, 'unknown' versus 'known' applies to the level of (non-)identifiability or knowledge and is considered to be marked by (in)definiteness. Second, 'offstage' versus 'onstage' applies to the level of activation or consciousness and can be thought of as a differentiation of 'new in the discourse' and 'not new', while – third – Allerton's dichotomy of 'non-immediate' versus 'immediate' further differentiates the activation parameter into what we called 'accessible' and 'given' information. As far as the prosodic marking of the proposed givenness degrees is concerned, Allerton's scale is not directly compatible with ours, since it only "applies to the relative givenness of noun/adverbial phrases that occur as appendages to a sentence" (1978:148) and not to the final argument (or NP) in an assertive sentence. Nevertheless, Allerton argues that the *type* (e.g. fall for new and semi-new information) and *strength* (secondary rise on semi-given or accessible information) of the nuclear contour – including the nuclear accent – has an influence on an item's perceived degree of givenness. Fully given items are claimed to be non-nuclear, i.e. they do not carry a nuclear accent at all, which is compatible with our claim.

Prince (1981) suggests a ternary model with 'new', 'inferrable' and 'evoked' information, being equivalent to Chafe's 'new', 'accessible' and 'given'. She does not explicitly differentiate between non-identifiable and identifiable referents, although this distinction is implicitly present in the division of new information into 'brand-new' and 'unused'. We adopt this distinction of the two types of new information (including Prince's terminology) for our model. Brand-new referents are new for the hearer and new in the current discourse, while unused referents are known to the hearer (i.e. present in his/her discourse-model) but not yet established in the ongoing discourse. Brand-new items are generally encoded as indefinite expressions, unused items as definite ones. Both types of expression usually receive an accent.[5]

From Lambrecht's (1994) extended version of Chafe's model we adopt the subdivision of the accessibility category into different types by their source or origin and extend it to some degree to the category of given information (following Prince's distinction between 'situationally evoked' and 'textually evoked'). An accessible or given referent may either be derivable from the physical context ('situational') or directly from the preceding text ('textual'). In addition, an accessible referent may be available via a bridging inference (cf. Clark 1977) from a previously mentioned referent or proposition ('inferential').

The following table (cf. also Baumann, to appear) gives examples of each of the seven categories. We provide two examples of inferentially accessible information, since different types of this category cause different prosodic realisations. The referents in question are underlined. Where there are relevant antecedents for the target referents, these are underlined as well. Nuclear accents are marked by capital letters.

[5] The question of pitch accent type will be addressed later. Prince does not differentiate between different accent types, since she is not concerned with intonation at all.

Brand-New	Ich habe mir gestern ein BUCH gekauft. (I bought a book yesterday.)
Unused (New)	Das Buch beschreibt den MOND. (The book describes the moon.)
Situationally Accessible	Ich habe noch nie so hässliche BILder (or: HÄSSliche Bilder) gesehen.[6] (I've never seen such ugly pictures.)
Textually Accessible (displaced)	Django ging an die Bar und bestellte einen Whisky. Er war bekannt dafür, dass er den Revolver schneller zog als sein Schatten. Man hatte Respekt vor ihm. Django trank den WHISky (or: TRANK den Whisky). Er brauchte nur einen Zug. (Django went to the bar and ordered a whisky. He was known for drawing the gun faster than his shadow. People respected him. Django drank the whisky. He finished it in one draught.)
Inferentially Accessible (whole-part)	Martin war begeistert von seinem neuen Buch. [...] Der Junge durchstöberte die SEIten. (Martin was enthusiastic about his new book. [...] The boy flicked through the pages.)
Inferentially Accessible (part-whole)	Der kleine Martin studierte jede einzelne Seite. [...] Der Junge LIEBte das Buch. (Little Martin studied every single page. [...] The boy loved the book.)
Situationally Given	Ich habe hier ein paar BILder für dich. (I have got some pictures for you here.)
Textually Given (currently evoked)	Django ging an die Bar und bestellte einen Whisky. Er TRANK den Whisky/ihn. Django brauchte nur einen Zug. (Django went to the bar and ordered a whisky. He drank the whisky/it. Django finished it in one draught.)

Table 1: Example sentences of the different givenness states of discourse refents

[6] The sentence is adapted from Lambrecht's (1994:99) English example *Those pictures sure are ugly*. We made sure that the referring expression *Bilder* ('pictures') occurs as the final argument in an assertive utterance in order to have the same surface structure in all examples.

Our determination of different givenness degrees of discourse referents is argued for on the basis of preferences as to their intonational marking, attested in a corpus analysis (cf. Baumann, to appear) and two perception experiments (cf. Baumann & Hadelich 2003, Baumann & Grice, in press). These studies aimed at examining claims made in the literature, going beyond the simple binary distinction between accentuation as a marker of new information and deaccentuation as a marker of given information. We were particularly interested in degrees of activation between the extreme poles of given and new, and – above all – in the accent types used for marking them. The most influential approaches in this area of research are the ones by Pierrehumbert & Hirschberg (1990) for American English and Kohler (1991) for German. Both studies served as points of departure for our own investigation. Pierrehumbert & Hirschberg, working within the framework of Autosegmental-Metrical Phonology, propose a model of intonational meaning in which the meaning of a whole contour can be derived from the composite meanings of pitch accents, phrase accents and boundary tones. Pitch accents are claimed to mark the status of individual discourse referents. A summary of the meanings attributed to different accent types is given in table 2:

H*	New
L+H*	Addition of a New value
!H*	Accessible
H+!H*	
L*+H	Modification of Given
L*	Given
no accent	

Increasing degree of Givenness

Table 2: Relation between accent type and state of givenness in Pierrehumbert & Hirschberg (1990)

In a series of perception experiments, Kohler (1991) investigates three accent contours – early, medial and late peak –, which are found to differ in meaning. However, only the distinction between early and medial peaks turns out to be categorical, while the difference between medial and late peaks is gradual in nature. Table 3 summarises Kohler's findings as to the relation between accent type and degree or state of givenness,[7] translating the contours tested into GToBI (cf. Grice et al. 2005) categories:

L+H*/L*+H (Late Peak)	Emphasis (on sth. New)
H* (Medial Peak)	New
H+L*/H+!H* (Early Peak)	Accessible or Given

Table 3: Relation between accent type and state of givenness in Kohler (1991)

Our corpus study (cf. Baumann, to appear) provided us with first insights as to how the final argument in assertive sentences is marked prosodically in German, i.e. which types of pitch accent can be found in actual production data. These types of pitch accent which turned out to be used for marking different cognitive states of discourse referents were only partly in line with our expectations derived from claims made in the (scarce) literature on German and English intonation and information structure, in particular Pierrehumbert & Hirschberg (1990) and Kohler (1991). Results show that pitch accent type H* indeed correlates with newness and deaccentuation with givenness, but that a surprisingly large number of items is marked by H+L* – irrespective of their activation state. This type

[7] Note, however, that Kohler does not concentrate on the information state of individual discourse referents (as Pierrehumbert & Hirschberg) but investigates the marking of a higher-level semantic-pragmatic relations.

of accent has been expected as a marker of accessible referring expressions but neither of fully given nor fully new ones. However, the high amount of H+L* accents may be explained by the text genre: the typical reading style of newspaper texts in German is characterised by a falling nuclear intonation contour with a H+L* pitch accent. Although this stylistic device might dilute the results, the use of H+L* reveals an interesting tendency, namely that the type of accessibility relates to a specific type of intonational marking. In particular, while synonyms are often unaccented, an inferable item in a given scenario (cf. Sanford & Garrod 1981) or an anaphoric meronym as well as situationally accessible items turn out to be marked by an accent – preferably H+L*. On the whole, however, we cannot guarantee the representativity of the intonation patterns produced, since the corpus was read by a single speaker. Nevertheless, we were able to use the pitch accent types (including deaccentuation) observed as the basis for our closer investigation into the appropriate intonational marking of discourse referents.

This closer investigation was carried out in two perception experiments with 30 subjects each, in which the preferred marking of the three accent types H*, H+L* and deaccentuation/no accent was tested in relation to (assumed) differences in the givenness degrees of referring expressions. Our motivation for selecting H*, H+L* and 'no accent' was (a) we considered them to be perceptually distinct, (b) they are claimed to mark different activation states in the literature, and (c) they frequently occurred in our production data.

The first experiment (cf. Baumann & Hadelich 2003) was designed to test the appropriateness of the three different types of nuclear intonation patterns in three different priming conditions. The primes varied in terms of activation degrees of the nuclear referents captured in the mode of presentation. We hypothesised that a referent is fully activated or given after having been presented as an auditory prime. We equated a visually primed referent with semi-active or accessible information. Finally, if no prime preceded an utterance, we regarded all referents as previously inactive or new information.

Results clearly confirm the general assumption that new information is preferably marked by a pitch accent. However, there is no significant preference for the *type* of accent marking newness. There is, nevertheless, indirect evidence in favour of H*, since this accent type is significantly more acceptable in the no-prime (new) condition in comparison to the other conditions. There is no such effect with the other pitch accent type tested, H+L*. The data further suggest that deaccentuation is most appropriate to mark given information. Moreover, there is (at least indirect) evidence for H+L* as an 'accessibility-accent', since it was significantly preferred over H* for marking the activated referents in the auditory priming condition. The visual priming condition did not trigger a significant preference of pitch accent type in the target sentences, which indicates that the activation status of referents established by this (non-linguistic) mode of presentation is not as clear-cut as in the auditory mode. However, evidence that the two priming conditions are different is provided by the fact that H* is more acceptable and deaccentuation is less acceptable after visual than after auditory priming. We interpret this to mean: visually presented referents are 'less given' than auditorily presented referents.

Nevertheless, a simple equation of visually presented material with accessible information appears to be at most an oversimplification. The degree of givenness of a visually available referent remains vague, since no significant difference in its intonational marking could be found. Furthermore, the experiment only investigated one type of accessibility, i.e. situational accessibility due to visual priming. Thus, it was obvious that the prosodic marking of accessible information needed closer investigation in a further experiment.

The results of the first experiment may have been affected by the fact that the stimuli were produced using diphone synthesis, which necessarily had a relatively poor segmental quality. To reduce these problems we used PSOLA resynthesis of natural recordings for the second experiment (cf. Baumann & Grice, in press). Moreover, we examined eight different accessibility relations between a textually given antecedent and an anaphor (the target referent) with regard to listeners' preferred pitch accent type on the target referents. The relations included the same expression recurring after three intervening clauses (textually displaced), symmetrical lexical relations like synonymy (*Fahrstuhl – Aufzug* 'elevator' – 'lift') and converseness (*Lehrer – Schüler* 'teacher' – 'pupil'), asymmetrical lexical relations like hypernymy-hyponomy (*Blume – Lilie* 'flower' – 'lily') and meronomy (whole-part; *Buch – Seite* 'book' – 'page') in both orders, and a scenario condition (*Restaurant – Kellner* 'restaurant' – 'waiter').

All texts for the experiment were composed of up to four context sentences, a target sentence, and a concluding sentence. Example (2) shows one of the five texts presented in the scenario condition (here: a restaurant scenario). The target sentence (including the target referent *Kellner* ('waiter')) is underlined.

(2) Das Restaurant war vom Feinsten. Schon das Lesen der Karte war ein Genuß. Allerdings hätten wir uns nicht alles bestellen können, was wir gerne gegessen hätten. Unsere Tischnachbarn riefen den Kellner. Sie hatten schon zwei Flaschen Champagner getrunken.

(The restaurant was excellent. It was already a pleasure to read the menu. Nonetheless, we couldn't have ordered everything we would have liked. The people at the next table called the waiter. They had already drunk two bottles of champagne.)

Figure 3 displays the three different versions of the target sentence, whose contextual appropriateness in terms of intonation had to be judged on a seven point scale. Each subject was played only one of the three versions of each target sentence.

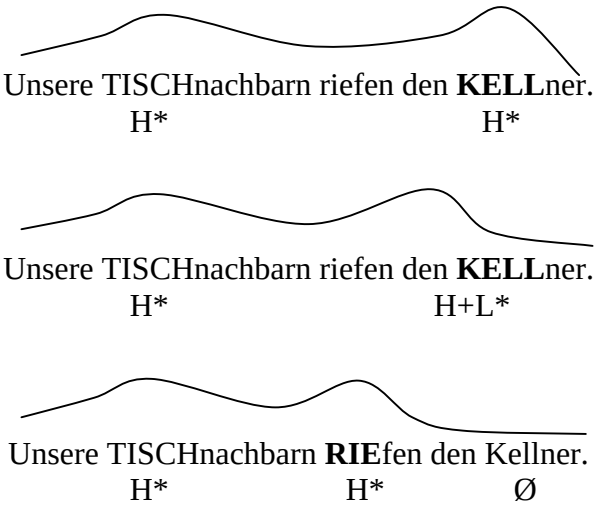


Figure 3: Schematised intonation contours of the target sentence 'The people at the next table called the waiter'

Results show that H+L* is the significantly preferred marker of certain types of accessible information, namely anaphoric expressions in a whole-part relation and as a part of an established scenario (as in (2) and figure 3). Other types of accessible information, such as items in a converseness relation, holonyms (i.e. the anaphor in a part-whole relation), synonyms and hypernyms, are preferentially deaccented. The intermediate status of H+L*, and in turn its appropriateness for marking semi-active or accessible information, is confirmed by the fact that this type of pitch accent was preferred over H* in all cases where deaccentuation was judged best. In other words: H+L* was at least the second choice for all kinds of supposedly accessible information. Table 4 summarises the results of the posthoc tests that were conducted. The types of accessibility are ordered according to the preference values for deaccentuation of the respective target referents.

Type of Accessibility	**Pitch Accent Type Preferences**	**Preference for Deaccentuation of Target Referent**
converseness	no accent ⩾ H+L* > H*	higher preference ↓ lower preference
part-whole	no accent ⩾ H+L* ⩾ H*	
synonymy	no accent ⩾ H+L* > H*	
hyponym-hypernym	no accent ⩾ H+L* ⩾ H*	
hypernym-hyponym	no accent ⩾ H+L* > H*	
textually displaced	H+L* = no accent ⩾ H*	
whole-part	H+L* ⩾ H* = no accent	
scenario	H+L* > H* = no accent	

Table 4: Summary of the results; the symbol '⩾' indicates 'highly significant preference', the symbol '>' indicates 'significant preference', and the symbol '=' indicates 'no significant difference'

The – broadly speaking – ternary distinction between high accents for new information, low accents for accessible information[8] and no accents for given information, mirrors a somewhat iconic use of pitch height in the marking of a referent's information status and is in line with the function of intonation attributed to the Effort Code (Gussenhoven 2002, 2004): the higher the pitch, the newer (and more newsworthy) the discourse referent. Such a gradient scale not only implies differences in accent *type* but also in accent *strength*, especially when thinking in terms of effort. This leads to another ternary distinction between primary, secondary and no accents, parallel to the other two scales mentioned above, presented in figure 4. It has to be stated clearly, however, that the categories on these scales do not stand in a one-to-one relation to each other.

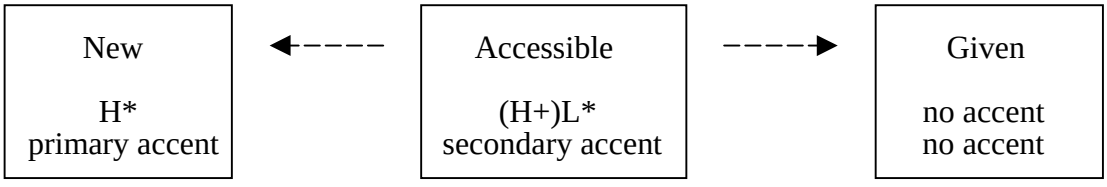


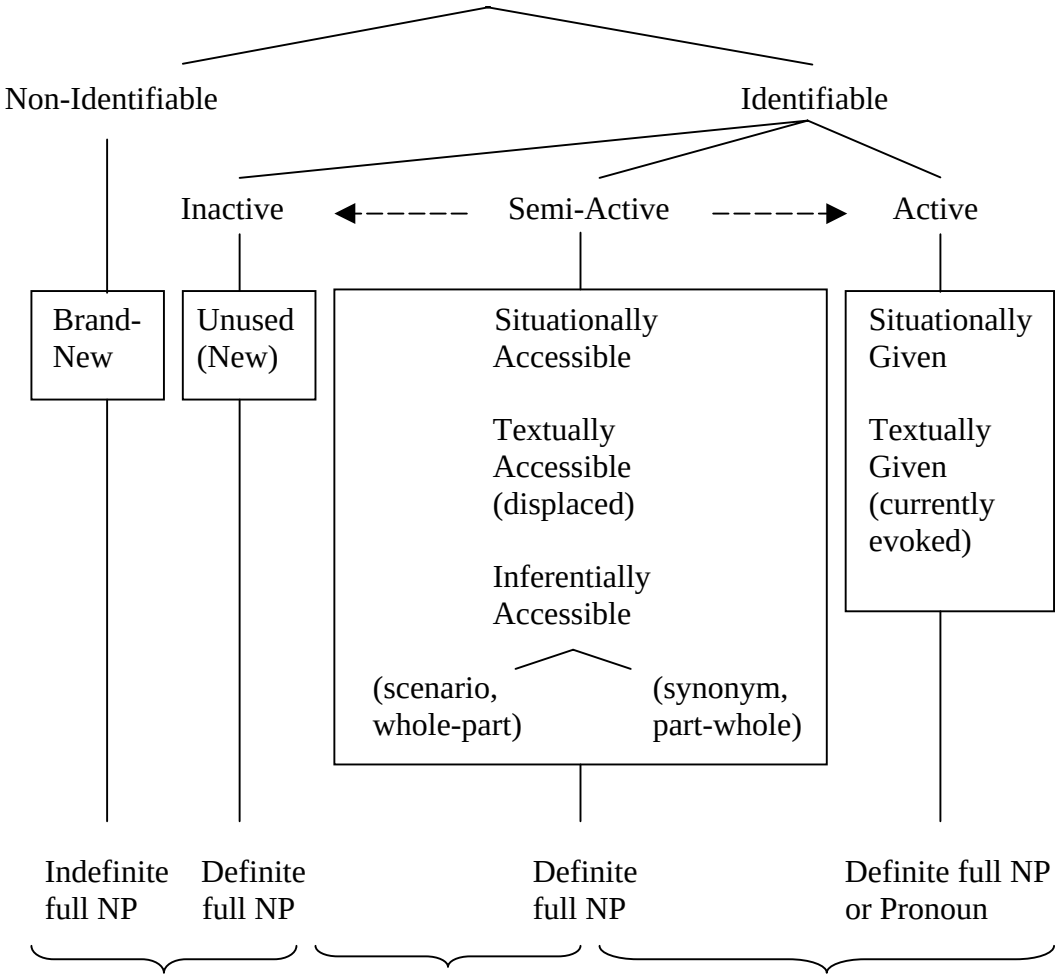
Figure 4: Proposed relation between activation degree, accent type and accent strength in German (and English)

[8] H+L* counts as a low accent here, since the starred tone is low.

In fact, several studies on German and English propose different kinds of secondary accents which are (more or less directly) claimed to serve as markers of semi-active information. However, a secondary status is usually not attributed to nuclear accents. Secondary accents may instead surface as prenuclear (cf. Chafe 1994, Büring, to appear) or postnuclear prominences, such as Halliday's (1967) 'secondary information focus', which closely resembles Allerton's (1978) 'semi-given' information, marked by a secondary rise on a postnuclear item that is recoverable from the preceding discourse. Further instances of postnuclear prominences are Kohler's (2003) 'force accents', characterised by increased articulatory effort and lack of pitch movement, and Grice et al.'s (2000) 'phrase accents'. Phrase accents are basically edge tones which may nevertheless be secondarily associated with stressed syllables. Force accents and phrase accents, as well as Büring's secondary accents, are claimed to apply to German.

The final version of our model of givenness degrees and states of discourse referents and their linguistic encoding in German in figure 5 is extended with a detailed list of possible variants in the intonational marking of the referents. The first row of pitch accents, printed in bold face, presents the variants we have evidence for as appropriate markers of the respective givenness degrees and states. They were attested in our perception experiments. The categories in the second row are the alternatives that were attested in our corpus analysis. Finally, the third row shows those variants which have been considered to be appropriate markers of the respective givenness states in the literature (cf. Baumann (to appear) for an overview). Although some of the alternatives were proposed for English, they may be relevant for German as well.

Note that the non-uniform character of accessibility is mirrored in the diagram: No significant preferences in the intonational realisation of situationally or textually accessible referents were found. This is indicated by their position between H+L* and lack of accent. Both H+L* and deaccentuation are possible markers for these types of accessibility (cf. the examples given in table 1 above). On the other hand, the types of accessibility for which we obtained significant results can be placed just to the left (H+L*) and to the right (no accent) of this dividing line. Since these are only preferences, it does not mean that another type of intonational marker would necessarily be inappropriate.



1.	**H***	**H+L***	**No Accent**		
2.	H* H+L* H+!H* !H*	H+L* L* H+!H*	H+L* L* No Accent !H* H+!H*	No Accent L* H+L*	No Accent H+L*
3.	H* L+H* L*+H Fall High Level	Accent	H+L* !H* H+!H* Secondary Accent Force Accent Phrase Accent Low Rise	No Accent	No Accent L* L*+H H+L* H+!H* Fall-Rise Low Level

Figure 5: Givenness degrees and states of discourse referents and their linguistic marking in German (including accent type preferences)

4. Conclusion

We have shown that a binary distinction between accent and lack of accent is far too simplistic for an adequate description of the various cognitive states a discourse referent may have in a listener's mind. We have to be aware that we are dealing with a continuum of activation degrees, and that the activation degree of referents is constantly changing as the discourse proceeds. Thus, the number of activation degrees is potentially infinite and cannot be captured by the limited number of distinct linguistic categories available. Our data show, for example, that a referent's degree of givenness depends on factors such as mode of presentation, distance from the referent's last mention, type of lexical relation to an antecedent, and even order of occurrence (e.g. in a whole-part relation). It could also be shown, however, that there are at least three distinct intonational categories (H*, H+L*, no accent) which are roughly appropriate for marking three different givenness states (new, accessible, given), although there is some overlap of H+L* and no accent as the preferred marker of a number of types of accessibility. This (to some extent) iconic relation between pitch height and a referent's information status is in line with Gussenhoven's (2002, 2004) 'Effort Code'.

Nevertheless, there is generally considerable variation in the prosodic marking of discourse referents, since preferences may vary between speakers and listeners. For example, an H+L* pitch accent may be acceptable for marking a synonymous expression (which proved to be preferably deaccented). Again, other choices may be unacceptable, such as deaccentuation as a marker of newness. That is, although it is surely too strong to claim that each of the three givenness states proposed here is marked by a single prosodic category, their intonational encoding is by no means arbitrary.

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