

›schon‹ – ›früh‹ – ›schnell‹

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1. Two ways of time

A little paradox concerning ›schon‹

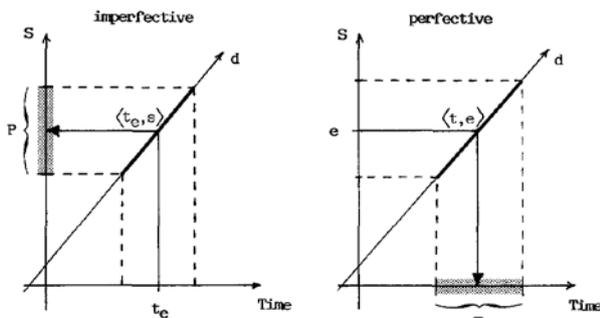
[S. Löhnner (1989), German *schon – erst – noch*: an integrated analysis. *Linguistics and Philosophy* 12: 167–212]

- (1) a. [Type 2] *es ist schon 9 – nicht erst 8* contrast with earlier time
 'it's already 9 o'clock – not (still) 8'
- b. [Type 3] *sie kommt schon um 9 – nicht erst um 10* contrast with later time
 'she'll come already at 9 – not (only) at 10'
- a'. *es ist schon 9 – das ist spät*
 'it's already 9 o'clock – that's late'
- b'. *sie kommt schon um 9 – das ist früh*
 'it's already 9 o'clock – that's early'

Type 2 In a sentence with imperfective aspect, *schon* focuses on a time-dependent state specification; the construction says that at the reference time *t*, this state specification is true, rather than a state specification applying to an earlier time.

Type 3 In a sentence with perfective aspect, *schon* focuses on a temporal frame adverbial *T*; the construction says that the event *e* happened within the time specified by *T*, rather than within a later time.

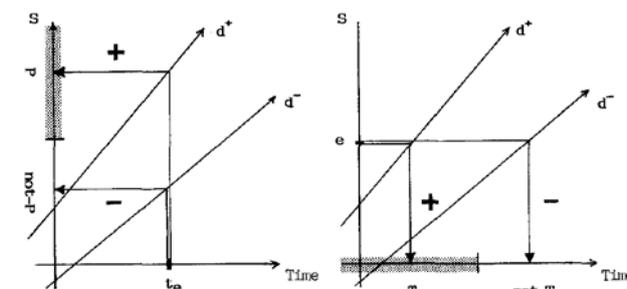
[from Löhnner 1989: 196] S-axis: temporally ordered states-of-affairs



Imperfective aspect: IP specifies a state; a reference time t_e is specified by tense and context and/or time adverbial; Predication is about t_e : at t_e , state *P* obtains.

Perfective aspect: IP specifies a type of event; a time interval *T* is specified by tense and context and/or time adverbial.

Predication is about *e*: *e* occurs, within *T*.
 (from Löhnner 1989: 196)



Developments: possible correlations of temporally ordered states-of-affairs with time: d^+ faster, d^- slower.

Imperfective perspective [left picture] given t_e , d^- is slower/ d^+ is faster, in corresponding to a less/more advanced state of affairs.

Perfective perspective [right picture] given *e*, d^- is slower/ d^+ is faster, in that *e* occurs later/earlier

Resolution

In both uses, *schon* serves to contrast a more advanced development with a less advanced one.

2. ›early‹

2.1 German and English vs. Japanese

when?	hayaku okiru früh aufstehen get up early	osoku okiru spät aufstehen get up late	haya-i, oso-i
it is [Time]	hayai früh early	osoi spät late	
manner (speed)	hayaku okiru schnell aufstehen get up quickly	noroku okiru langsam aufstehen get up slowly	haya-i, noro-i
IN adverbial	hayaku okiru schnell aufstehen get up quickly	?	haya-i

- (2) a. *get up quickly* / ? (IN adverbial, = ›within short time‹)
 b. *get up early / late*

2.2 Get up early / late on day d

Working assumption:

›Get up‹ is taken in the sense of ›get up from night sleep‹; a person *p* gets up on a day *d* exactly one time:
 $\forall d \forall p \exists! e \text{ getup}(e,p) \wedge \tau(e) \in d$; there is a function **Getup: person x day → event**

Standard analysis:

early and *late*, when applied adverbially to a verb that refers to an event *e*, predicate about the time $\tau(e)$.
 The predication is in case of *early / late*: $\tau(e)$ is [considerably] earlier / later than a standard for the time when an event of the type/kind *e* is supposed to happen.

(For analyses in this style cf. Bierwisch 1989, Kennedy 1999, Kennedy & McNally 2005 etc.)

- (3) $\tau(\text{Getup}(p, d)) < \text{standard}(\tau(\text{Getup}(p, d)))$ | condition on *p*, condition on *d*

The standard depends on the definition of the type of event: getup events as such; getup events of person *p*; getup events of a person of class *P*, get-up events as such on days of class *D*, getup events of person *p* on days of class *D*; getup events of persons of class *P* on days of class *D*, etc.: Every argument of an event of this type and every condition on every argument may figure in defining a standard. This may also involve implicit arguments.

Remark

While ›early‹ and ›late‹ compare times, ›quick(ly)‹ and ›slow(ly)‹ compare speed values (in a general sense, see below).

3. ›quickly‹

3.1 Internal speed readings (“manner”)

Internal speed readings of *quickly* / *slowly* relate to the rate of progress in an ongoing activity; this is speed in a more traditional sense. Verbs eligible for this type of modification denote events with a temporally monotone progress. This use of *quickly* / *slowly* goes basically with imperfective aspect as it relates to an event in progress, but can be superimposed with perfective or perfect aspect.

Subclasses of verbs eligible

- A telic:
 - reach a specified result state [results in a reading that is hard to distinguish from / systematically overlaps, or cooccurs, with duration reading]
 - verbs with an incremental argument;
 - verbs for complete actions with a result
 - eat wash_dishes change clothes cook*
 - > progress in terms of gradually approaching the target state
- B1 atelic + durational:
 - activities or processes consisting of repeated parts
 - manner of movement: *walk gallop rob jog run swim*
 - chew read speak sing play (on an instrument) beat (drum etc.) paddle breathe pant*
 - > progress in terms of accumulating repetitions
- B2 less acceptable: punctual verbs, in particular semelfactives
 - ? *sneeze brush comb nock*
 - # *bark shout cough laugh beat*
- C verbs of locomotion
 - go ride drive fly glide*
 - also manner of motion (cf. A) ¹
 - > progress in terms of path gone
- D degree achievements (non -punctual)
 - grow spread rise recover stabilize improve* (specific scale)
 - change become* (unspecific scale)
 - > progress in terms of specific scale or an implicit dimension of change
- E verbs in collective predication
 - gather*
 - questionable: verbs in distributive macropredication
 - the refugees quickly crossed the German boarder / left their home country*

3.3.2 Modeling internal speed

Basic idea

Construct speed as the first derivation of a progress function (in terms of the respective progress dimension). This approach requires local continuity of the progress function – within $\tau(e)$.

Problem

The topology of time to be applied may be discontinuous, not allowing for the infinitesimal definition of df/dt . For example: ‘breathe quickly’

¹ Open question: Verbs of manner of motion involving locomotion with recurring movements (*walk, gallop*) seem to only yield the space-related speed reading, not the repetition-related one. (However: *run quickly on the treadmill*; this is possible because change of location is excluded.)

Events of locomotion

Define the trajectory of a motion in space:

$$\text{traj}(e) =_{\text{df}} \{ \langle \text{LOC}(\text{AGENS}(e), t), t \rangle : t \in \tau(e) \}$$

The times underlying the trajectory need not form a contiguous stretch in time. It may be sufficient to assume that there is a finite set of times in linear temporal order within $\tau(e)$, something like:

A **time line/chronology** for an event e is a set $\{t_0, \dots, t_n\}$ with $t_0 = \text{begin}(\tau(e))$, $t_n = \text{end}(\tau(e))$; $t_0 < \dots < t_n$ and $n \geq$ some sensible minimum.

Remark: If e is punctual, there is no time line for e because $\text{begin}(\tau(e))_n = \text{end}(\tau(e))$.

Attempt to define the (internal) speed of locomotion for an event e :

$$v(e, t) =_{\text{df}} \text{LOC}(\text{AGENS}(e), t) / dt \quad \text{bzw.} \quad \text{LOC}'(\text{AGENS}(e), t)$$

Remark:

We need to define $\text{LOC}(\text{AGENS}(e), t)/dt$ on the basis of a time line for e . One possibility: restrict the definition to times within the time line, i.e. t with $\text{begin}(\tau(e)) < t < \text{end}(\tau(e))$; define for time line $\{t_0, \dots, t_n\}$ and $0 < i < n \in$

$$\text{LOC}(\text{AGENS}(e), t_i) / dt =_{\text{df}} 1/2 ((\text{LOC}(\text{AGENS}(e), t_{i+1}) - \text{LOC}(\text{AGENS}(e), t_i)) / (t_{i+1} - t_i) + (\text{LOC}(\text{AGENS}(e), t_i) - \text{LOC}(\text{AGENS}(e), t_{i-1})) / (t_i - t_{i-1}))$$

3.2 External speed readings

All these cases are preferably used with perfective aspect: they relate to the event as a whole. However, imperfective aspect is not excluded: *Was machst du denn hier? Ich rauch gerade nur mal schnell ne Zigarette.* In all these cases, *quickly* represents an "In-adverbial".

3.1.2 Sub-readings

S1 Onset speed reading

How much time does it take until e happens (or begins)?

- special class: verbs of reaction
react reply answer
- special class: classical achievements
- more generally: verbs of simple change

S2 Completion reading

How much time does it take until e is completed?

Remark For punctual verbs, the first two readings coincide.

- accomplishment verbs

S3 Done reading

How much time does it take until e is completed and the initial state is restored?

- (4) *Ich zieh mich schnell um.*
'I'll quickly change my clothes'

S4 Duration reading

How much time does e take?

- non-punctual verbs

Definition 1 Speed function for punctual events

Let e be a punctual event, t' be a contextually given time, $< \tau(e)$. The function speed measures the speed of e occurring after t' .

$$\text{speed: EVENT} \times \text{TIME} \rightarrow \text{TIME}^{-1} \text{ such that for all } t > t', \text{ all } e \text{ with } \tau(e) > t' : \text{speed}(e, t') =_{\text{def}} \frac{1}{\tau(e) - t'}$$

Remarks

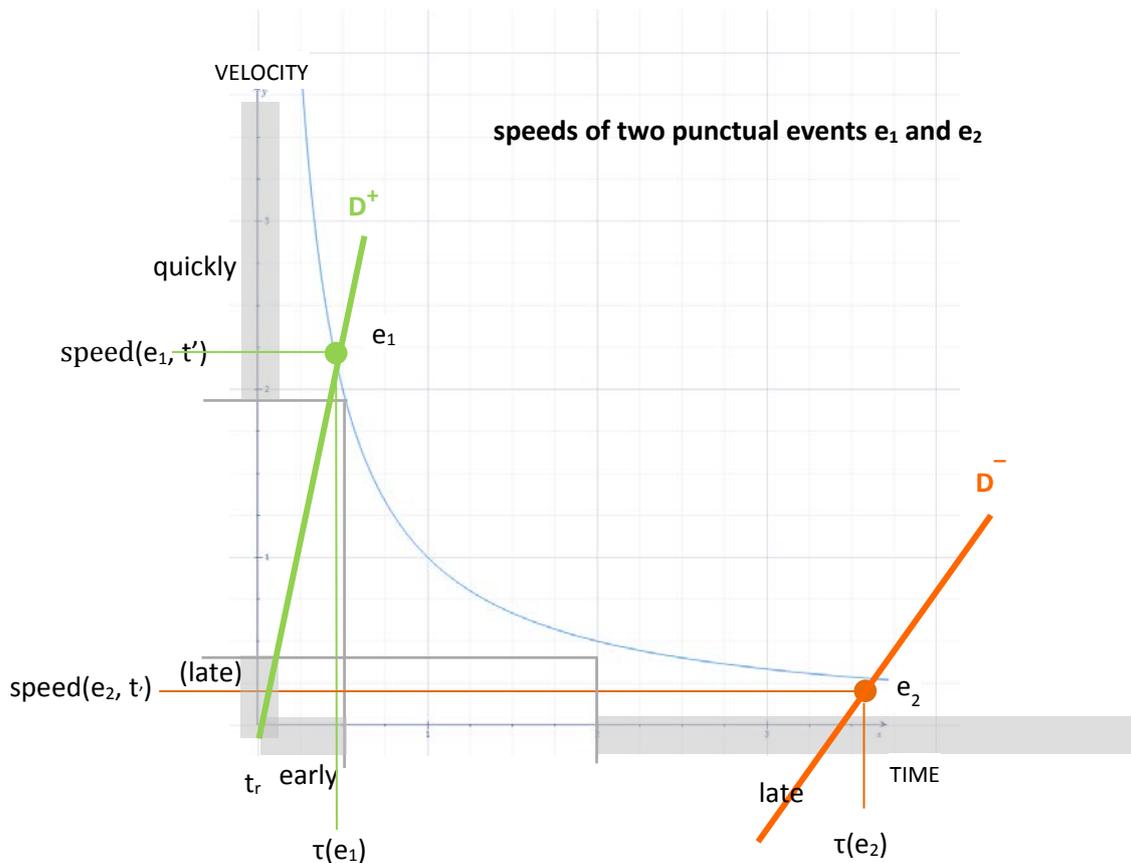
The value of speed is a generalized speed: a quotient of some (arbitrary) measure and a duration.

- speed locates e in a two-dimensional space of SPEED \times TIME.
- The two dimensions are inversely related as shown in the figure below.
If e happens **early** after t' , then e is **quick** ;
if e happens quickly, then e is early after t' .
- The speed function returns a degree for the standard ADJ analysis.
- As an IN-adverbial, the predication is in need of a lower speed bound, and therefore an upper time bound: a ›within TIME‹ modification is pointless if TIME does not provide an upper bound.
Therefore, no antonym of *quickly* can serve in this function: it would specify an upper speed bound, correlation with a lower time bound, but no upper time bound.

Onset speed reading: apply $\text{speed}(\text{begin}(e), t')$

Completion speed reading: apply $\text{speed}(\text{end}(e), t')$

Duration reading: apply $\text{speed}(\text{end}(e), \tau(\text{begin}(e)))$



4. Conclusions

- Temporal ›already‹ and ›quickly‹ / ›slowly‹ deal with the relation between temporally ordered states of affairs (history, as it were) and time as such.
- Both operators have polarity contrasts in terms of more, or less, advanced developments.
- Given that time as such is established by temporally ordered states of affairs (e.g. by events that define, and count, time units), ›early‹ / ›late‹, too, are closely related to the two dimensions of time; ›early‹ and ›late‹ are degree concepts about times.
- There are basically two types of use of ›quick(ly)‹:
 - (1) “External speed” uses rate the time interval between some contextually given time and an event-related time, or between the beginning and the end of an event.
There seems to be no correspondent use of ›slow(ly)‹.
 - (2) “Internal speed”, or manner, use: measures the speed of ongoing event, provided the event concept provides for a monotone progress (where mere temporal progressing is not sufficient).

In both types of use, ›quick(ly)‹ can be given an essentially **uniform analysis** as expressing high speed, if the notion of speed is generalized accordingly (contra Rawlins 2013)

- ›quick(ly)‹ / ›slow(ly)‹ are degree concepts about speed in all adverbial uses.
- First derivations of functions may be useful in formal semantics in certain cases.

References

Rawlins, Kyle (2013), On adverbs of (space and) time. In B. Arsenijević et al. (eds.), *Studies in the Composition and Decomposition of Event Predicates*. Dordrecht: Springer. 153–193.

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