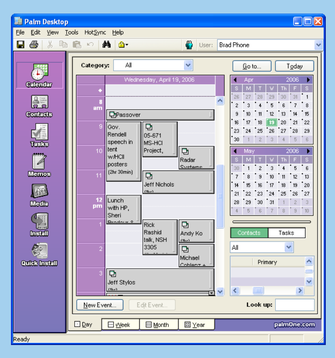
Availability Bars for Calendar Scheduling

Andrew Faulring and Brad A. Myers
{faulring, bam}@cs.cmu.edu
Human-Computer Interaction Institute
Carnegie Mellon University

Calendar Scheduling

- Calendar scheduling is difficult for people who have overbooked calendars with many constraints.



- Currently, calendar applications do not allow users to specify scheduling constraints such as:
  - How early is one willing to meet?
  - Which meeting is most reschedulable?
- We are investigating *complex* constraint specification and visualization in the context of calendar scheduling.
- Solutions should work for people who schedule meetings by hand and who use an intelligent calendar scheduling agent.

Design Solutions

- **Preference Level Continuum**. A constraint representing a user's preference for new meetings during a time period has a strength ranging from *required* to *unacceptable*.
- **The Availability Bar** visualizes how a user's preference for new meetings varies over the course of a day. It was designed so that users can interact with a calendar scheduling agent within the context of their calendar application.
- **Painting Availability** interaction technique allows users to easily express availability constraints.
- **Scheduling Group Meetings** is easier when invitees' availability bars are displayed side-by-side.

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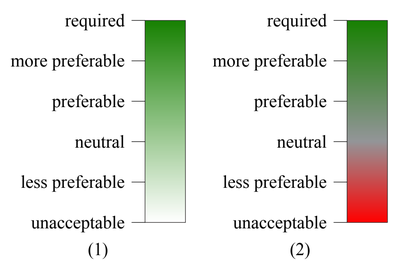
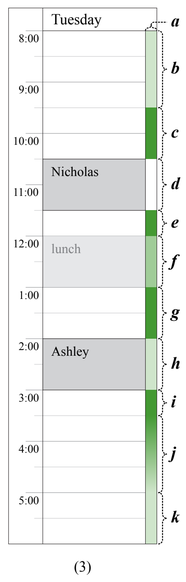
Preference Level Continuum

- A constraint representing a user's preference for new meetings during a time period has a strength ranging from *required* to *unacceptable*.
- Figure 1: A single-hue gradient visually encodes such a constraint's strength.
  - Stronger constraints are encoded by more saturated colors.
  - *required* is assigned a very saturated value of the hue, drawing attention to it.
  - *unacceptable* is assigned white (completely unsaturated).
- Figure 2: An earlier design used a multi-hue gradient.
  - With this design, red draws too much attention to unacceptable times when the user is actually looking for acceptable times (green).



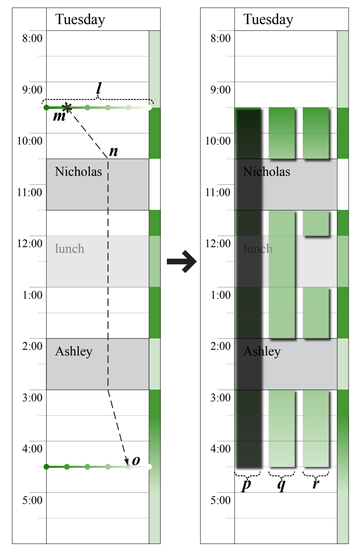
The Availability Bar



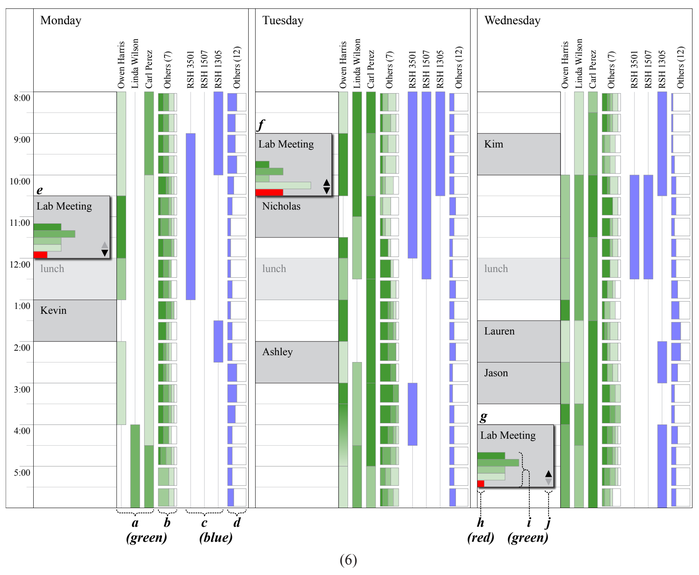
- Figure 3(*a*) shows an availability bar, which visualizes how a user's preference for new meetings varies over the course of the day.
- (*b, k*): The user prefers not to have meetings early in the morning or late in the afternoon: *less preferable* preference level.
- (*c*, *e*, *g*, and *i*): The four unscheduled regions between 9:30 and 3:30 are *more preferable* times for scheduling meetings.
- (*d*): Nicholas is important and cannot be easily rescheduled: *unacceptable* preference level.
- (*h*): Ashley can be rescheduled if necessary: *less preferable* preference level.
- (*f*): Lunch time is assigned the *neutral* preference level.
- (*j*): The preference level may vary within a region. For example, this region decreases continuously from *more preferable* to *less preferable*, indicating a user's decreasing preference for meetings later during this range of time.

Painting Availability

- The *painting availability* interaction technique allows users to easily express availability constraints; useful in a variety of situations:
  - when responding to an email or to an agent,
  - in a shared calendar system,
  - as a global preference, or
  - when modifying an availability bar.
- Figure 4: User drags out a region of time (*m*→*n*→*o*). The mouse's horizontal position selects the preference level.
- Figure 5: System generates three availability options for the user to choose among:
  - (*p*): exactly what the user dragged out.
  - (*q*): excludes any scheduled meetings from (*p*).
  - (*r*): further excludes times that are unscheduled, but not available, such as lunch.



Scheduling Group Meetings



(6)

- Figure 6 shows how scheduling group meetings is easier when invitees' availability bars are displayed side-by-side.
- To the right of each day appear two sets of availability bars:
  - invitees
    - (*a*) three most important invitees
    - (*b*) histogram summarizing the others
  - conference rooms (*c, d*)
- (*e*, *f*, and *g*): Three possible times for the "Lab Meeting"
  - Histogram (*i*) shows the number of invitees for each preference level.
  - For the unacceptable level, a red bar (*h*) instead of a white one emphasizes that some invitees cannot attend.