Calendar Scheduling

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

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.
  - (f): Ashley can be rescheduled if necessary: less preferable preference level.
  - (j): Lunch time is assigned the neutral preference level.
- 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.

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 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)
    - (c, 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.