Novel Word/Phrase Shorthand Enhances Pen-Centric Interfaces

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Graffiti Alphabet (Palm), 1995

(A Mostly uppercase Roman handprint)
Allegro Alphabet (Papyrus), 1995
(now Microsoft)

(Mostly lowercase Roman handprint)
Simplified Design Tradeoffs/Decisions for Graffiti and Allegro PDA Alphabets

- **Small alphabet**
  - one case rather than both upper and lowercase
- **One stroke per character (character = stroke)**
  - allows machine to recognize each character upon pen lift
- **Small number of writing variations per letter**
  - preferably only one
- **Separate writing areas for letters and digits**
  - avoids confusion of similarly shaped letters and digits
- **High correspondence to Roman alphabet for ease of learning**
  - non-geometric, might not actually qualify as shorthand
Commercially Successful Shorthands

- Similar to the Roman alphabet
  - Easy to learn
  - Graffiti used in Palm OS devices
    - notably the Palm Pilot & Handspring models
  - Allegro used in Microsoft Windows devices
- Geometric alphabets not successful
Potential DPS Dissertation Topic

- Enhance current pen-centric shorthand interfaces
  - Use word/phrase shorthand to speed text input
  - Thus provide critical infrastructure for many pen-centric applications
  - Should improve natural pen-centric interactions for many applications
  - Will have greatest impact on the utility of applications running on small mobile devices
- Extend initial work of an M.S. dissertation
Pen-Centric Word/Phrase Shorthand such as Chatroom Shorthand

- Further increase speed of text entry
- Potential applications
  - Where input speed important
  - Where word/phrase abbreviations occur frequently – e.g., email
## Chatroom Shorthand Examples

<table>
<thead>
<tr>
<th>Shorthand</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CU</td>
<td>See you, or Cracking up</td>
</tr>
<tr>
<td>CM</td>
<td>Call me</td>
</tr>
<tr>
<td>@TEOTD</td>
<td>At the end of the day</td>
</tr>
<tr>
<td>^5</td>
<td>High five</td>
</tr>
<tr>
<td>2nite</td>
<td>Tonight</td>
</tr>
<tr>
<td>LOL</td>
<td>Laughing out loud</td>
</tr>
<tr>
<td>ASAP</td>
<td>As soon as possible</td>
</tr>
<tr>
<td>B/C or BC</td>
<td>Because</td>
</tr>
</tbody>
</table>
Allegro/Chatroom Shorthand System

- Developed for M.S. dissertation
  - Student was hearing impaired
  - Developed as output component of communication system
    - Handwriting to text to speech
- Two input writing areas
  - One for Allegro (all-purpose)
  - One for chatroom-like or user-defined words/phrases
Allegro/Chatroom Shorthand System

Stroke acquisition GUI

- a single stroke

- is it

- character
  - alphabet
  - sentence accumulator

- word/phrase
  - meaning
  - other stroke recognition

- user-defined stroke library

allegro stroke library

allegro stroke recognition

sentence accumulator

done?

- yes
  - Sentence display and spoken output

- no
Allegro/Chatroom Shorthand System
Allegro/Chatroom Shorthand System
M.S. Thesis Experimental Results

- Allegro/Chatroom pen-centric shorthand input is faster than typing text and is comparable to typing text and chatroom shorthand characters.
Conclusions

Pen-Centric Shorthands

- Pen-centric interfaces should use shorthand, and especially word/phrase shorthand where appropriate, for fast text input

- Benefit of shorthand interfaces
  - Provides critical infrastructure for many pen-centric applications
  - Enhances natural pen-centric interactions for many applications
  - Has greatest impact on the utility of applications running on small mobile devices
References


