Presentation 1
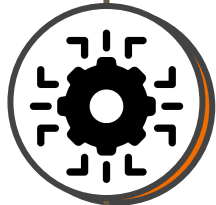
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Goal of this presentation

Define Redundancies
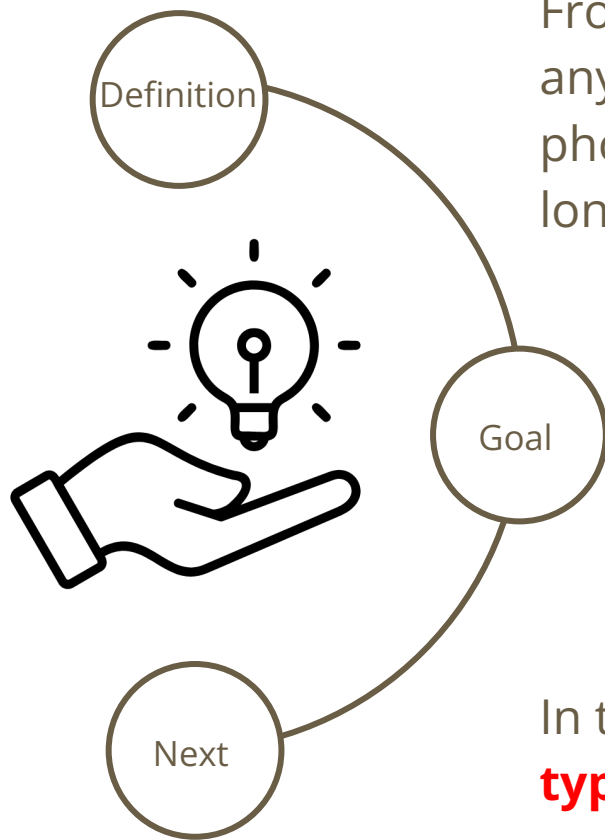
Propose Algorithms to Identify Redundancies

Examples / Other Observations / Questions
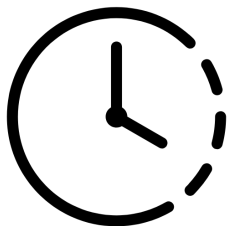
Redundancies

Definition

From the caller's perspective, redundancies are any **repeated** or **unnecessary** steps in the phone system that make it harder or take longer to get help.
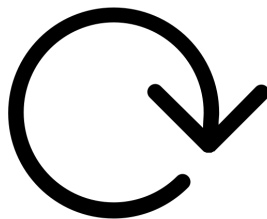
Goal

Target moments when the caller might get **confused** or **spend too much time** navigating the menu.

Next

In the next slide, we will look at the **specific types** of redundancies
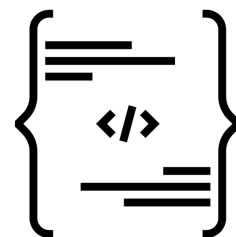
Types of Redundancies

Calls taking longer
than they should

Repeated Processes
(Paths or Prompts)

Code / Internal
Redundancies

Type 1: Calls taking longer than they should

Subtype 1: *Node-level delay*

Callers spend too long on a menu prompt, suggesting poor prompt design

People can comfortably process only 3-5 options at once (Cowan 2010)

Algorithm: *Confusing prompts*

Measure average idle time per prompt

Adjust for prompt length and other potential variables (e.g. time of day)

Flag prompts with above-average adjusted time

Subtype 2: *Call-level delay*

Callers spend too long overall in the call flow

Suggests unnecessary detours through menus → poor menu design

Algorithm: *Long Paths*

For each given final node, calculate average times taken for each path taken to the final node, and compare.

Output: exact paths that take the most time.

Type 1: Calls taking longer than they should

Challenge:

- Identifying the amount to attribute to poor menu design vs. other variables.
- Longer paths may not necessarily mean redundancy

Legal Menu Prompt

If you or a household member is impacted by HIV, press 1.
If you are calling about domestic violence, sexual assault, stalking, a family law issue, divorce, an issue with the Department of Children and Family Services or DCFS, a special education or school discipline issue, or a name change, press 2.
If you are calling about a housing issue, such as foreclosure, eviction, notice of termination, or disconnection of utility services, press 3.
If you are calling about Social Security, SNAP or food stamps, TANF, Medicaid, veterans benefits, or other benefits programs, press 4.
If you are calling about bankruptcy, debt collection, a student loan or other loan or contract issue, driver's license suspension due to debt, or consumer fraud, press 5.
If you are calling about criminal records relief such as expungement or sealing, press 6.
If you are calling about an employment issue, press 7.
If you are calling about an immigration issue, press 8.
If you are calling to prepare documents to designate someone you trust to make decisions for you in the future if you are unable to do so yourself, also known as healthcare or financial power of attorney, or to name someone to leave your home to after you pass away, press 9.
If you did not hear a legal issue that applies to you, press 10, or one-zero on your keypad.

To repeat the menu options, press the pound key.

Employment Menu Prompt

If you are calling about unemployment benefits, press 1.

If you are calling about wages you are owed, press 2.
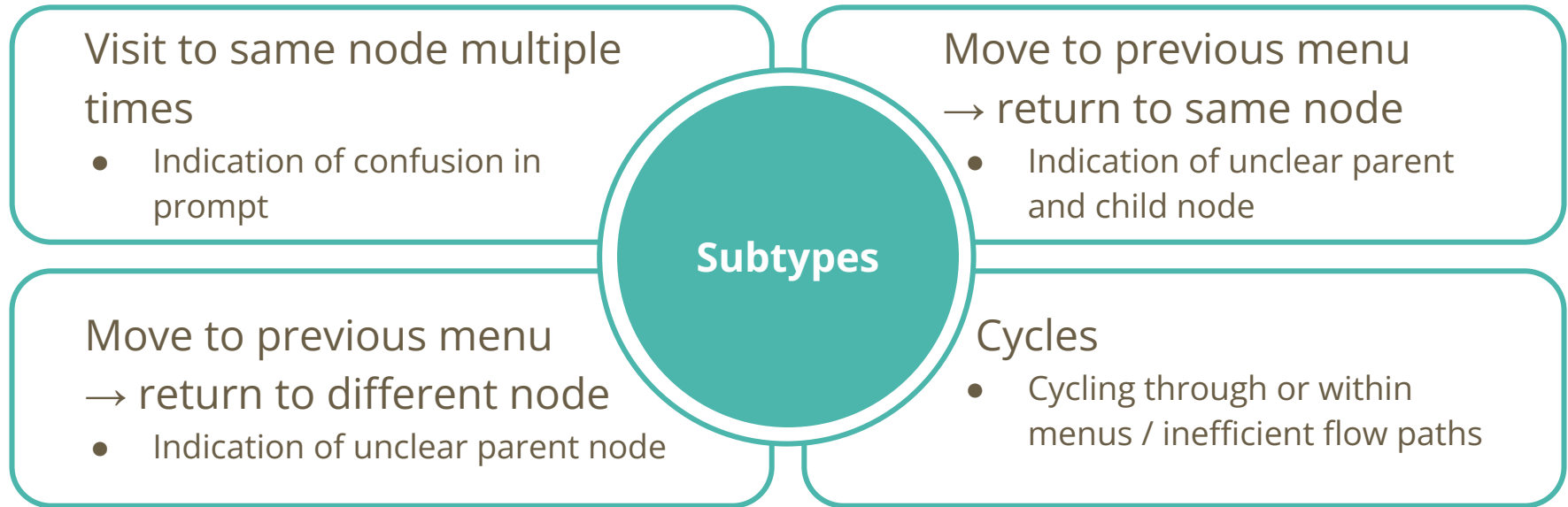
If you are calling about a worker's compensation issue, press 3.

If you are calling about any other employment issue, press 4.

To repeat these options, press the pound key.

To return to the previous menu, press 9.

Type 2: Repeated Processes

Visit to same node multiple times
- Indication of confusion in prompt

Move to previous menu → return to same node
- Indication of unclear parent and child node

Subtypes

Move to previous menu → return to different node
- Indication of unclear parent node

Cycles
- Cycling through or within menus / inefficient flow paths

Algorithm: Analyze CAR data to identify nodes where these repeated processes are occurring

Type 3: Code/Internal redundancies

- **Redundancy**
  - Repeating and/or unnecessary internal software checks
    - Ex: checking available business hours, holidays
- **Algorithm**
  - Flow Chart Analysis
 - Difficult to flag from data
- **Impact**
  - Simplify navigation, potentially reduce time, prevent system overload during peak hours

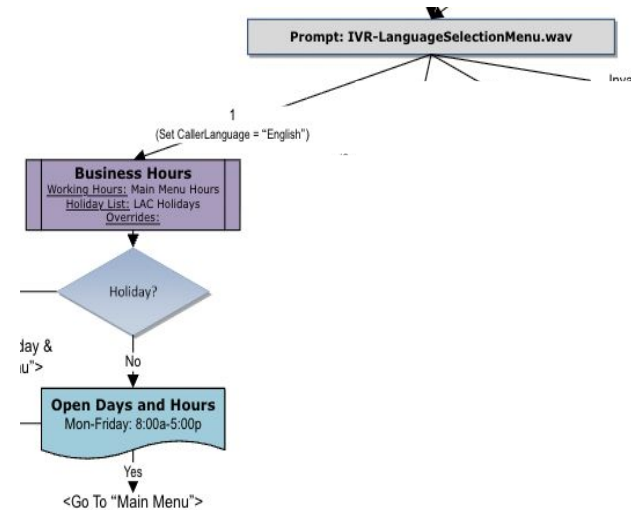# Type 3: Internal Redundancy Example

Example:

- **Main Number Call Menu**
  - -> language selection prompt
  - No input directs you to front desk rather than main menu

- **Two Redundancies**
  1. Checks holiday twice when "Holiday List" is the same
  2. Redundant business hours checking

- **Potential Solution**
  - Remove/consolidate the different types of business hours
  - Remove holiday check when checking multiple sets of business hours
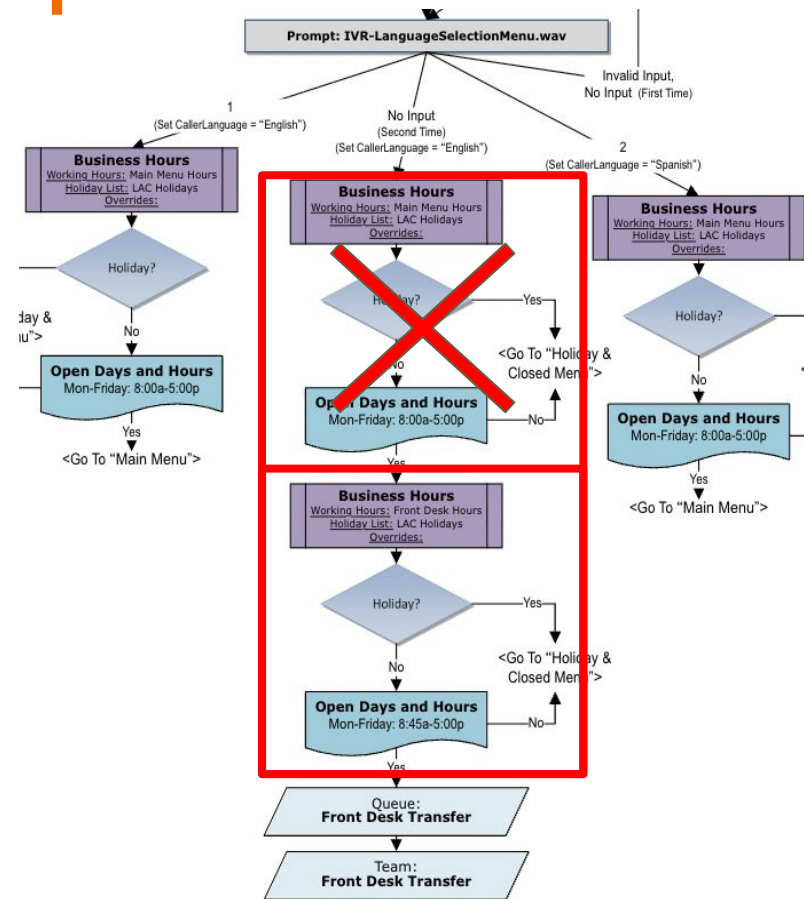
Other Observations / Questions

- Potential inconsistency between Webex CC Flows chart and CAR data
  - Flow chart suggests language selection -> mainmenu hours check -> main menu
  - CAR data suggests language selection -> mainmenu hours check -> pre-legal seniors menu
- Many end nodes that result in Legal Aid unable to handle selected issues
- Systematically identifying parent/child node relations for type 2 redundancies

Sources

Cowan, N. (2010). *How is Working Memory Capacity Limited, and Why?* National Library of Medicine (PMC). https://pmc.ncbi.nlm.nih.gov/articles/PMC2864034/

Thank You